

- "Q. Okay. So was the material then put into the burn pit and then burned immediately thereafter? A. Yes." Garee Dep., 83:19-21.
- "I never saw or heard of propellant waste being left in the burn pit overnight or for prolonged periods of time." Hernandez Dec. ¶ 7.
- "I never saw a build up of waste-like material in the burn pit." Ustan Dec. ¶ 8.

Given that the only testimony relied upon by the Advocacy Team was retracted, this allegation must too be disregarded as unsupported.

f. The Evidence Cited Does Not Support the Allegation that Goodrich Disposed of TCE in its Burn Pit

The Advocacy Team alleges that TCE and "TCE slurry" was routinely disposed of in Goodrich's burn pit. Ad. Team P&As, 77. However, nowhere in its Memorandum of Points and Authorities does the Advocacy Team cite any credible evidence that Goodrich actually used TCE in its operations. The Advocacy Team purportedly relies upon Mr. Wever's deposition testimony. But, Mr. Wever's testimony does not support this allegation. Mr. Wever testifies that spent *solvent* containing propellant was disposed of in the burn pit, he does not testify that specifically TCE was disposed of in the burn pit. See Ad. Team P&As, Attachment 66 (Wever Dep., 27:21-29:7) ("if we had any cleanup solvents that had propellant, in it, that went on top of that just before we lit it off.").

Importantly, the Advocacy Team fails to disclose the important fact that Mr. Wever timely corrected certain sections (upon careful reflection and as permitted by the Federal Rules of Civil Procedure) cited by the Advocacy Team in his certified transcript, to indicate that he does not recall whether trichloroethylene (TCE) or trichloroethane (TCA) was used at Goodrich, consistent with his later testimony. Ex. 20279 (Wever Corrections); see also Wever Dec. ¶ 32. The testimony of every other former Goodrich employee indicates that the Advocacy Team's allegations of TCE use are unsupported. See Haggard Dep., 54:10-23; Garee Dep., 122:6-123:18; Morris Dep., 39:3-25; Shook

1 Dep., 29:2-19; Holtzclaw Dec. ¶ 9; Willis Dec. ¶ 13.

2 Of course, TCE was not the only available solvent during Goodrich's years of
3 operation. Both acetone and cyclohexanone were commonly used solvents and
4 according to Dr. Merrill, "it is reasonable that Goodrich would have used these solvents
5 in the production and research and development of solid rocket propellant." Merrill Dec.
6 ¶ 18.

7 **4. The Advocacy Team's Allegations Regarding Goodrich's Static**
8 **Test Firing Bay Lack Any Foundation in Fact**

9 **a. No Scrap Propellant Remained in the Static Test Firing**
10 **Bay After a Test Firing**

11 Citing solely Mr. Polzien, yet again, the Advocacy Team asserts that "propellant
12 from defective rockets and leftover propellant from tested rocket motors" were disposed
13 of in the Goodrich burn pit. Ad. Team P&As, 77. Again, the overwhelming percipient
14 and expert testimony confirms that propellant burned extremely efficiently and that no
15 propellant remained in the static test firing bay or the motor casing after a test firing
(even if there was a defect or "misfire"):

- 16 • "I have examined [misfired motors], yes. The one or two, I
17 did – I think there was two. I did examine them. And I don't
18 recall seeing any – any propellant in them. They didn't –
19 they didn't explode. What they did was: The burnt out on
20 the head end, and then, of course, that would drop the
21 pressure by half at least, and then they just slowly and
22 consumed themselves. By 'slowly,' I'd say in a matter of
23 seconds." Staton Dep., 75:5-16.
- 24 • "After a test firing no propellant or oxidizer remained in the
25 test bay area or in the motor itself." Graham Dec. ¶ 7.
- 26 • "When rockets were tested in the static test-firing area, all
27 the propellant burned in the rocket, and there was no
28 propellant that remained in the casing. . . . Even after a
rocket malfunctioned, there was no scrap propellant lying on
the ground on and around the test-firing area." Sachara
Dec. ¶ 8.
- Mr. Garee never saw an instance where a solid rocket motor
was ignited and it did not burn all of the propellant in the
casing. Garee Dep., 277:17-24; see also Garee Dep., 24:4-
25, 33:5-20, 47:2-9, 277:6-16, 279:2-17, 285:2-13.

- Mr. Haggard testified that all of the propellant in the motor casing was consumed after ignition. Haggard Dep., 122:14-123:12.
- “When rockets were tested, all the propellant burned out. There was no unburned scrap propellant on the floor of the test bay or on the ground nearby.” Ustan Dec. ¶ 10.
- Dr. Claude Merrill, who has decades of experience in the field of rocket science and has witnessed hundreds of test firings, confirms that “[a]ll propellants containing ammonium perchlorate concentration of 68 weight percent or greater **burned completely so that no residues remained.** . . .” Merrill Dec. ¶ 29 (emphasis added).

Mr. Polzien’s testimony is the only thing the Advocacy Team cites to support its allegations. And once again, the testimony of witness after witness, both former Goodrich employees and experts, contradicts Mr. Polzien’s statements. Ms. Sturdivant’s obstinate refusal to recognize that Mr. Polzien’s testimony is at best inaccurate, and at worst, an outright falsehood, and her willingness to ignore all of the other witness testimony in the case speaks volumes about her judgment and objectivity. The vast overwhelming weight of the evidence contradicts the Advocacy Team’s contention that any propellant remained in the static test firing bay after a test firing; the Advocacy Team’s allegation should be disregarded.

b. The Number of Motors Test Fired Each Week Is Far Less Than That Asserted by the Advocacy Team

In yet another unsupported allegation, the Advocacy Team asserts that “[r]ecords and testimony indicate that as many as ten rocket motors were tested on a daily basis at the Goodrich facility.” Ad. Team P&As, 75. Yet, Mr. Staton, the former supervisor of the static test firing bay, plainly refutes this assertion. Mr. Staton testified that test firing did not occur every day, but rather, the static test firing bay was used on average, four days a week, with about six firings per day. Staton Dep., 38:20-24; see also Garee Dep., 157:5-23. Even Mr. Polzien, who the Advocacy Team relies so heavily upon, testified that “there were some days when there were absolutely no tests.” Polzien Dep., 206:21-25.

1 c. **There is No Evidence For the Advocacy Team's**
2 **Assertion That Misfires Occurred on a Daily Basis**

3 The Advocacy Team asserts that "[i]t was not uncommon for at least one rocket
4 motor to misfire or self-extinguish on a weekly basis." Ad. Team P&As, 75. Again, the
5 Advocacy Team provides no evidentiary citation supporting this statement. It is pure
6 fabrication. Not surprisingly, the testimony of former Goodrich employees directly
7 contradict this assertion and indicates that, at most, there were actually very few
8 malfunctions in the static test firing bay. Mr. Staton, the former supervisor of the static
9 test bay at the Goodrich Rialto plant, confirms that **only two or three malfunctions**
10 **occurred in total**. Staton Dep., 37:14-25, 75:5-16; see also Garee Dep., 130:1-20,
11 276:13-23 (only one malfunction involving a Loki rocket and two malfunctions total). Had
12 the Advocacy Team considered this testimony, perhaps this patently false allegation
13 would not have appeared in the Advocacy Team's brief.

14 d. **The Advocacy Team Provides No Support for the**
15 **Assertion that Test Motors Were Reused**

16 The Advocacy Team states that "[t]he misfired or self-extinguishing motors were
17 then salvaged, and their propellant was removed and disposed of in Goodrich's burn pit."
18 Ad. Team P&As, 75. In support they cite Mr. Polzien's testimony. *Id.* (Attachment 23,
19 Polzien Dep., 217-218). But, the portion of Mr. Polzien's testimony cited has absolutely
20 nothing to do with the allegation asserted – the cited testimony relates to the Atmos
21 rocket, and has nothing to do with the test firing of test motors. See Polzien Dep., 217-
22 218.

23 Former Goodrich employees with firsthand knowledge regarding the test firing of
24 motors, including Mr. Staton, the supervisor of the static test firing bay, testified that test
25 fired motor casings could not be reused. Staton Dep., 73:20-74:9 ("To my knowledge,
26 there was never any reused. You had stress on the case.") Similarly, Mr. Sachara
27 testified that "[a]fter a rocket was tested, the motor casings could not be reused; they
28 were scrap." Sachara Dec. ¶ 8. Because the Advocacy Team failed to cite to any

1 evidence supporting this assertion, it cannot be relied upon in any finding against
2 Goodrich.

3 **e. There is No Credible Evidence that Water Was Used in**
4 **the Static Test Firing Bay**

5 The Advocacy Team alleges that “[o]n some occasions, residue and unburned
6 propellant was rinsed from the concrete test bay onto the bare ground using a water
7 hose.” Ad. Team P&As, 75-76. The only basis for this allegation is – once again – the
8 testimony of Mr. Ronald Polzien. *Id.* But, the Advocacy Team fails to tell the Hearing
9 Officer that Mr. Polzien later testifies during direct examination that he has “no
10 recollection of water being used” in the test bay area. Polzien Dep., 297:15-16.
11 Moreover, Mr. Polzien is unable to credibly explain how a hose was used in the static
12 test firing bay because there is no water source at the test bay itself. Polzien Dep.,
13 537:25-540:16 (Mr. Polzien testifies that the closest water spigot was over 500 feet away
14 and he has no recollection of a 500 foot hose). Not surprisingly, Mr. Polzien’s testimony
15 about water used to rinse the test bay is contradicted by several other former
16 employees:

- 17 • According to Mr. Staton, who was in charge of the static test bay,
18 there was no water source nearby the static test bay and water was
19 not used to clean the area. Staton Dep., 36:15-20.
- 20 • Mr. Sachara testified that “[he] never used and [he] never saw
21 another employee use water or a hose to clean the test-firing area.”
22 Sachara Dec. ¶ 8.
- 23 • “I have no recollection of any water lines, spigot or hose near the
24 static test stand.” Wever Dec. ¶ 52.
- 25 • “I never saw the test bay cleaned in any manner with water or
26 otherwise and I do not recall there being any water source, hose or
27 spigot located near the test bay.” Graham Dec. ¶ 7.
- 28 • Garee Dep., 24:4-25; see also Garee Dep., 33:5-20, 47:2-9, 277:6-
16, 279:2-17, 285:7-9 (“Q. Did you ever see anyone mop out the
test bay? A. No.”).

1 5. The Advocacy Team Cannot Cite to Any Evidence That
2 Goodrich Used TCE

3 Without any citation to fact, the Advocacy Team contends throughout its
4 Memorandum of Points and Authorities that Goodrich used and disposed of TCE as part
5 of its operations in Rialto. See, e.g., Ad. Team P&As, 64 (“[a]s part of the development,
6 testing and production of solid rocket propellant and rocket motors, Goodrich used
7 various chemicals at the property, including TCE. . . .”). This blanket assertion regarding
8 TCE use also is unsupported **by any citation to evidence**. To the contrary, former
9 Goodrich employees do not recall the use of TCE at the plant:

- 10 • “I recall that acetone was used at the Rialto facility to clean the
11 carriages where propellant was cured. I do not recall any other
12 solvent being used at the facility. I do not recall ever seeing
13 Trichloroethylene or hearing of any employees using
14 Trichloroethylene at the facility.” Holtzclaw Dec. ¶ 9.
15 • “During the entire length of my employment at Goodrich, I never used
16 and I did not see any other employee use trichloroethylene at
17 Goodrich’s Rialto facility.” Willis Dec. ¶ 13.
18 • Mr. Morris never saw or personally used trichloroethylene at the
19 Goodrich facility. Morris Dep., 39:6-11.
20 • Mr. Shook never saw trichloroethylene at the Goodrich facility.
21 Shook Dep., 29:11-19.
22 • Mr. Staton testified that he does not recall any disposal of TCE in
23 Goodrich’s burn pit. Staton Dep., 80:17-21.
24 • Mr. Hernandez does not recall trichloroethylene being stored at
25 Goodrich. Hernandez Dec. ¶ 3.

26 The Advocacy Team simply ignores this extensive testimony of the former Goodrich
27 employees that TCE was not used at the Rialto plant.

28 While the Advocacy Team purports to rely upon Mr. Wever’s testimony with
respect to Goodrich’s use of TCE, it again fails to consider the corrections made to Mr.
Wever’s certified transcript. A review of the corrections to Mr. Wever’s certified

1 deposition transcript reveals, consistent with his later testimony at the deposition, that he
2 does not recall whether TCE or TCA was used at Goodrich's facility, and each place the
3 word "TCE" is used, Mr. Wever corrected his response to state "TCE or TCA." Ex.
4 20279 (Mr. Wever's Corrections). Mr. Wever's testimony simply provides no support for
5 the Advocacy Team's conclusion that Goodrich used TCE at its Rialto facility. Moreover,
6 Mr. Wever confirmed in his declaration under penalty of perjury that he has "no
7 recollection of the specific solvent used" in the cleaning processes at Goodrich. Wever
8 Dec. ¶ 32.

9 Without any testimonial or documentary evidence, the Advocacy Team cannot
10 support its allegations that Goodrich used and disposed of TCE at its Rialto facility.

11 **6. The Advocacy Team Inflates the Size and Extent of Goodrich's**
12 **Rialto Operations Without Any Factual Support**

13 **a. Goodrich Operated at Full Production for Less Than Five**
14 **Years**

15 The Advocacy Team asserts that "from 1957 to 1964, Goodrich manufactured
16 rockets. . . ." Ad. Team P&As, 63. This statement is misleading because it was not until
17 the Fall of 1957 that Goodrich began setting up its operations. Wever Dec. ¶ 8 ("After
18 arriving at the Rialto plant in September 1957, it took several months to get operations
19 underway . . . I would estimate that the research and development of propellant did not
20 begin until early 1958."). For most, if not all of the remainder of 1957, Goodrich did not
21 produce any propellant, as the focus was on setting up the operations in Rialto. *Id.* It
22 was not until 1959 that Goodrich obtained a contract to produce the Loki motor. See Ex.
23 22 (KWKA00452123-29) (Nord 18853 Contract for Loki II stating that "THIS CONTRACT
24 is entered into as of 2 April, 1959. . . ." (emphasis added); Ex. 51 (KWKA00452202-03)
25 (**May 27, 1959** Nord 18966 Contract for Loki I). Furthermore, full production of
26 propellant at Goodrich ceased upon the discovery of cracks in the propellant grain of the
27 Sidewinder motor in November of 1962 and the only propellant produced was in
28 connection with the re-qualification of the Sidewinder motor. Wever Dec. ¶ 46, Ex. 90
(KWKA00452707); Ex. 13 (KWKA00452702-06); Ex. 12 (KWKA00452713-14). Thus,

1 Goodrich only “manufactured rockets” from sometime in 1958 until 1962.

2 **b. The Advocacy Team Exaggerates the Number of Loki I**
3 **Motors Loaded at Goodrich**

4 Basing its calculations on documents “suggesting” that “at least 330 Loki I rocket
5 motors were manufactured by Goodrich, the Advocacy Team concludes that [i]t is
6 therefore reasonable to conclude that Goodrich utilized at least 4,290 pounds of
7 ammonium perchlorate in the manufacturing of Loki I rocket motors.” Ad. Team P&As,
8 68-69. This is simply a miscalculation and exaggeration that has no evidentiary support.

9 The Advocacy Team exaggerates the number of Loki I rocket motors
10 manufactured by Goodrich; although the Advocacy Team asserts that Goodrich
11 manufactured “at least” 370 Loki I rocket motors, the only contract for the Loki I required
12 only 270 motors. Ex. 2 (KWKA0045202-03); Ex. 8 (KWKA00452314); Ex. 9.
13 (KWKA00452557-59). At approximately 20 motors per batch, this translates into
14 approximately 14 batches of propellant mixed for the Loki I. Merrill Dec. ¶ 20, Ex. A.

15 **c. The Advocacy Team Also Exaggerates the Number of**
16 **Loki IIA Motors Loaded by Goodrich**

17 The Advocacy Team relies upon a technical paper dated December 5, 1961,
18 presented by Goodrich staff at a technical conference, when discussing the production
19 of Loki IIA motors at Goodrich. Ad. Team P&As, 69. However, this technical paper has
20 several internal inconsistencies, making it difficult to rely upon any given fact in the
21 document. For instance, the document says that, “[I]ate in 1958, The B.F. Goodrich
22 Company began the manufacturing and development of the LOKI IIA motor. . . ,” but
23 then states in “early 1959, production of the LOKI IIA motors was begun for Cooper
24 Development Corporation. . . .” Ad. Team P&As (Attachment 16 RIALTO024653). It is
25 likely that the Advocacy Team is mistakenly relying upon a historical summary of a
26 Cooper Development project and not the actual contracts obtained by Goodrich. This
27 assumption is further supported by the actual government contracts, which indicate that
28 Goodrich began loading the Loki II in 1959. Ex. 22 (KWKA00452123-29); Ex. 51

1 (KWKA00452202-03).

2 As another example of the inconsistencies in the 1961 technical paper relied upon
3 by the Advocacy Team, the document states that "500 [Loki IIA rocket motors]
4 manufactured" by Goodrich, but then states that "the quantity produced now totals about
5 1,000 units." Ad. Team P&As, 69 (Attachment 16, RIALTO024653-6). Of course, the
6 Advocacy Team relies upon the cite for 1,000 units produced to date, despite the fact
7 that it is unclear whether these motors were produced by Goodrich and the document
8 appears to be referring to Cooper Development. Ad. Team P&As, 69 (Attachment 16)
9 ("In early 1959, production of LOKI IIA motors was begun for **Cooper Development**
10 **Corporation**, using motors cases of their manufacture. Additional development and
11 loading of these motors has continued since, for the Signal Corps and others, under
12 subcontract to Cooper and its successors, the Marquardt Corporation. The quantity
13 produced now totals about 1,000 units.").

14 The overwhelming documentary and testimonial evidence supports the fact that
15 far less than 1,000 Loki IIA rockets motors were loaded at Goodrich. But, the available
16 government contracts establish that far less than 1,000 were loaded at Goodrich – the
17 contracts were for a total of only 515 **Loki I and Loki II** motors. Ex. 22
18 (KWKA00452123-29); Ex. 2 (KWKA00452202-3); Ex. 72 (KWKA00452502-3); Ex. 8
19 (KWKA00452314); Ex. 9 (KWKA00452557-59); Ex. 6 (KWKA00453329); see also Merrill
20 Dec. ¶¶ 20, 25; Haggard Dep., 17:19-18:1 (Mr. Haggard estimates approximately "a
21 couple hundred" Lokis were produced); Willis Dec. ¶ 14 ("[w]hile I was employed at the
22 Rialto facility, it is my belief that Goodrich manufactured less than 200 Loki I and Loki II
23 rockets combined.").

24 Even Ms. Sturdivant concedes that the document relied upon by the Advocacy
25 Team does not confirm that Goodrich (as opposed to a different government contractor)
26 loaded the 1,000 Loki IIA motors:

27 Mr. Dintzer: Well, do you know whether or not the -- of the 1,000
28 units, some subset of that was loaded by Cooper

Development or the Marquardt Corporation or JPL at locations other than the 160-acre parcel?

Ms. Sturdivant: I don't know for certain.

Sturdivant Dep., 736:16-737:6.

The simple fact is that Goodrich manufactured the Loki I and IIA motors under government contracts, and the contracts call for production of 515, not 1,000 as asserted by the Advocacy Team. Of course, because the Advocacy Team exaggerates the number of Loki motors loaded, the "calculation" made regarding the amount of ammonium perchlorate needed is correspondingly exaggerated.

d. Just as the Advocacy Team Exaggerates the Number of Loki IIA Motors Loaded, It Exaggerates the Number of Loki IIA Motors Test Fired

Without citing to any evidence, the Advocacy Team states that "[s]ixty-three of the Loki IIA motors were static tested at the Rialto site between 1958 and 1961." Ad. Team P&As, 70. Actually, nowhere near sixty-three Loki IIA motors were static tested at the Rialto facility. Mr. Wever testifies that "one production motor from each batch was static test fired in the test bay." Wever Dec. ¶ 50. Mr. Wever further testified that "approximately twenty-six to twenty-seven production batches of the Goodrich formulation propellant containing ammonium perchlorate produced during the entire time the plant was operating from 1958 to 1963." Wever Dec. ¶ 42. Thus, the testimonial evidence that only approximately 26-27 production batches (included within this estimate is the Loki IIA motor which contained a Goodrich propellant formulation) establishes that far less than 63 Loki II motors were tested at the Goodrich facility.

In addition, "[a]n additional 12 Loki IIA test motors were fired . . . with a single test motor failure in the test bay." Ad. Team P&As, 70.² However, the testimony of Mr. Staton, a former Goodrich employee and former supervisor of the static test bay at the Goodrich Rialto plant, confirms that, at most, only **two or three** failures or malfunctions

² Because no citations are provided to evidence, it is unclear what documents or testimony the Advocacy Team is basing these statements on.

1 occurred in total and that all propellant was consumed in a failure. Staton Dep., 37:14-
2 25, 75:5-16; *see also* Garee Dep., 130:1-20, 276:13-23 (only one malfunction involving a
3 Loki rocket and two malfunctions total). There is no available evidence that more than
4 two "malfunctions" occurred in the firing of the Loki motor in Goodrich's static test firing
5 bay.

6 **e. The Cited Evidence Does Not Support The Advocacy**
7 **Team's Estimate of the Number of Sidewinder Rocket**
8 **Motors Manufactured at the Rialto Plant**

9 The Advocacy Team asserts that "at least 347 Sidewinder motors were
10 manufactured before Goodrich was forced to abandon the project (see below). Although
11 500 Sidewinders were ordered for production, at least 347 motors were cast, and as
12 many as 650 motors may have been cast." Ad. Team P&As, 70 (citations omitted). To
13 support these estimations, the Advocacy Team again relies largely on the testimony of
14 Mr. Polzien, while ignoring the testimony of Dwight Wever, the program manager of the
15 Sidewinder project, and the available government contracts stating the number of
16 Sidewinders Goodrich was under contract to produce. Ex. 11 (KWKA00452643-44)
17 (Letter indicating that 311 Sidewinders scheduled to be loaded); Ex. 12
18 (KWKA00452713-14) (November 21, 1962 letter regarding cracking of Sidewinder
19 propellant in Lot 3); Ex. 13 (KWKA00452702-06) (cancel qualification of Lot 3); Ex. 14
20 (KWKA00452719-23) (further Sidewinder loading suspended); Ex. 15 (KWKA00452767-
21 78) (contract cancelled); *see also* Wever Dec. ¶ 45 ("As the program manager for the
22 Sidewinder rocket, I estimate that a little over twenty batches of the Goodrich formula
23 propellant, which contained ammonium perchlorate, was made and loaded into the
24 Sidewinders. For each batch created through the process of mixing up the propellant,
25 approximately twelve sidewinder rocket motors were cast."). This is despite the fact that
26 Mr. Polzien later testifies that he does not know how many Sidewinders were made:

26 Mr. Dintzer: And so my question to you is, you don't know how many
27 Sidewinders were actually loaded at the Goodrich facility,
28 isn't that true, sir?

Mr. Polzien: Total number?

1 Mr. Dintzer: Yes, sir.

2 Mr. Polzien: No.

3 Polzien Dep., 1300:19-24. Importantly, Mr. Polzien recognizes that Mr. Wever, the
4 project manager on the Sidewinder, has more credible knowledge regarding the
5 production of the Sidewinder. It is unexplainable that Ms. Sturdivant insists upon citing
6 Mr. Polzien for the number of Sidewinders produced when (1) he concedes that he does
7 not know how many were made and (2) substantial credible evidence belies his earlier
8 testimony.

9 **f. The Advocacy Team Mischaracterizes Goodrich's**
10 **Production of the Jet Assisted Take Off Rocket (JATO)**

11 Predictably, the Advocacy Team relies exclusively on the testimony of Mr. Polzien
12 for information on the JATO rocket, which allegedly contained "[s]ixty to 90 pounds of
13 solid rocket propellant. . . ." Ad. Team P&As, at 71. But as demonstrated above, Mr.
14 Polzien never observed the loading of a rocket at Rialto, never witnessed any part of the
15 oxidizer processing procedure, never witnessed the mixing process, and has no
16 knowledge regarding the formulations of motors loaded by Goodrich. Polzien Dep.,
17 587:25-588:11 & 592:3-11 & 594:6-11. Despite these facts, the Advocacy Team relies
18 exclusively on Mr. Polzien's non-existent knowledge to support its allegations regarding
19 the JATO motor and the ingredients of the propellant formulation for the JATO motor.

20 **g. The Advocacy Team Mischaracterizes Goodrich's**
21 **Production of both the ASP 1 and ASP 4 Motors**

22 According to the Advocacy Team, the ASP 1 contained "several hundred pounds
23 of propellant" and the "[p]ropellant used in the ASP 1 was 70% by weight ammonium
24 perchlorate." Again, the Advocacy Team relies on Mr. Polzien, who admittedly has no
25 first hand knowledge of the production of propellant at Goodrich and does not know the
26 formulation of the rockets loaded at Rialto. Polzien Dep., 587:25-588:8 & 592:3-11 and
27 594:6-11. Mr. Polzien's testimony is contradicted by Mr. Wever who testifies that "*the*
28 *oxidizer used in the propellant for the ASP was ammonium nitrate and not*

1 **ammonium perchlorate.”** Wever Dec. ¶ 12 (emphasis added).

2 The Advocacy Team also notes that “one extremely large (2,000 pounds total
3 weight) ASP rocket was tested. . . .” Ad. Team P&As, 72. Although there is no citation
4 to evidence for this proposition, former Goodrich employees contradict this unsupported
5 “fact.” One such employee states that “Goodrich manufactured one or two ASP rockets.
6 Each ASP rocket contained **80 to 90 pounds of propellant.**” Willis Dec. ¶ 16
7 (emphasis added). This is significantly different than the unsupported allegation of a
8 2,000 pound rocket motor.

9 **h. The Cited Evidence Does Not Support the Allegations**
10 **Regarding Goodrich’s Production of Test Motors**

11 The Advocacy Team contends that the “test motors contained approximately 15 to
12 20 pounds of propellant.” Ad. Team P&As, at 73. No citation to evidence is provided.
13 The Advocacy Team also asserts that “10.5 to 14 pounds of ammonium perchlorate
14 were used in each TM-2 and TM-5 motor.” *Id.* Similarly, there is no citation to evidence
15 for the purported “fact” that ammonium perchlorate was used in all test motors.
16 According to the head engineer in Research & Development at the Rialto plant,
17 “[ammonium perchlorate] was not the only oxidizer used” at Rialto. Sachara Dec. ¶ 4.
18 Moreover, additional employees who worked exclusively in the laboratory at Goodrich
19 establish that the test motors were actually much smaller. Morris Dep., 42:2-18 (“One of
20 them was probably six inches in diameter, about six to eight inches in diameter. . . Once
21 would be probably about eight inches long; yeah, eight inches long, maybe up to a foot
22 long. . . They were small motors, yes.”).

23 **7. The Advocacy Team Mischaracterizes the Evidence Concerning**
24 **Goodrich’s Use of Ammonium Perchlorate**

25 The Advocacy Team makes the finding that “ammonium perchlorate was the
26 exclusive oxidizer used for all rocket propellant manufactured by Goodrich at the
27 property, with only minor exceptions.” Ad. Team P&As, at 64. This allegation is simply
28 untrue and is made **without reference to a single citation to evidence.** While some of

1 the motors loaded at the Goodrich facility contained ammonium perchlorate –
2 ammonium perchlorate was not the only oxidizer utilized by Goodrich. According to Mr.
3 Wever, the oxidizer used in both the RTV and ASP was ammonium nitrate – not
4 ammonium perchlorate. Wever Dec. ¶ 11-12; see *a/so* Sachara Dec., at ¶ 4
5 (“[ammonium perchlorate] was not the only oxidizer used.”). It is unclear why these
6 witnesses, who have testified to such facts during their respective depositions, are
7 ignored by the Advocacy Team.

8 The Advocacy Team further alleges that “Goodrich’s research and development
9 facility mixed its own rocket propellant on the Property for test purposes. This test
10 propellant likely contained perchlorate . . .” Ad. Team P&As, 67. To support this
11 assertion, the Advocacy Team relies on the testimony of Mr. Wever, but as stated above,
12 Mr. Wever specifically testified that not all propellant, including propellant used for
13 research and development purposes, contained ammonium perchlorate. Wever Dec.
14 44. Further troubling is the fact that the testimony cited to by the Advocacy Team does
15 not discuss Goodrich’s research and development processes, nor does it discuss mixing
16 of propellant for test purposes. See Ad. Team P&As, 67 (Attachment B, Wever Dep.,
17 57:22-58:15). The Advocacy Team’s unsubstantiated statement again should be
18 disregarded.

19 **8. The Advocacy Team’s Unsupported “Story” Regarding**
20 **Goodrich’s Production Process is Materially Misleading**

21 **a. The Advocacy Team Recklessly Coins the Term “Water-Perchlorate Slurry”**

22 The Advocacy Team purports that as a result of the cleanup associated with the
23 “grinding” process, “[t]he water-perchlorate slurry was then poured directly onto the
24 ground outside the grinding room.” Ad. Team P&As, at 65. No citation to any
25 documentary or testimonial evidence is cited for this statement. Moreover, the
26 characterization of a “water-perchlorate slurry” is highly misleading. As testified by Mr.
27 Wever, the grinding operation was conducted in a highly controlled environment to
28 minimize any fugitive emissions:

1 A smaller part of the oxidizer, approximately 25%, was ground to
2 produce a smaller particle size to get a specific burn rate. To grind
3 this small portion of the oxidizer, Goodrich utilized a laboratory-sized
4 hammermill. . . . During the grinding, a screen in the grinder
5 prevented particles that were too large from passing into a large
6 metal collection drum, which was equipped with a dust bag.

7 The entire grinding process was done in the large room in the
8 oxidizer processing building. There was no ventilation in this
9 building, and the door was always kept closed.

10 Wever Dec. ¶¶ 22-23. Moreover, Mr. Wever testified that virtually all of the small amount of
11 fugitive material was swept into a dustpan and placed into a combustible container for
12 later transport to Goodrich's burn pit. Wever Dec. ¶¶ 25-26. There is no evidence that
13 anything but a de minimis amount of perchlorate was disposed of directly onto the bare
14 ground.

15 **b. The Advocacy Team's Characterization of the Mixing**
16 **Process is Not Supported by the Evidence**

17 The Advocacy Team asserts that "[t]wo 100-gallon mixers and a third 150-gallon
18 mixer were used for preparing propellant containing ammonium perchlorate." Ad. Team
19 P&As, at 66. The testimony of Mr. Wever is used to support this fact. However, the
20 Advocacy Team omits subsequent testimony of Mr. Wever, in which he corrects his
21 earlier testimony:

22 My testimony before has been that the two mixer sizes have been --
23 what were they? 100- and 150-gallon mixers for production. [¶] This
24 Exhibit 92 has corrected my memory, if you will. **The two mixers in**
25 **production was a hundred and a 25. A 100-gallon mixer and a**
26 **25-gallon mixer.** [¶] The reason for the confusion is that since
27 leaving B.F. Goodrich, I worked for TRW for a number of years, still
28 in the propellant industry, if you will, and those -- the motors that we
were concerned about during that time were much larger motors
than they used the 250-gallon type mixers, so that I wanted to clarify
that before we got going.

Wever Dep., 273:12-24 (emphasis added). See also Wever Dec. ¶ 28 ("There were two
production mixers at the Goodrich plant: a 25-gallon mixer and a 100-gallon mixer.");
Sachara Dec. ¶ 5 ("Goodrich's Rialto facility had two production mixers, a 25-gallon
mixer and 100-gallon mixer, to produce solid rocket fuel."). Although Goodrich installed
a third mixer, which was larger in size, shortly before closing the Rialto plant, that mixer

1 was only used on one occasion. Sachara Dec. ¶ 5 (“Shortly before closing the plant,
2 Goodrich installed a larger mixer, but it was used on only one occasion.”).

3 Again, citing Mr. Polzien, the Advocacy Team asserts that “[t]he mixing equipment
4 at Goodrich, including the transfer pot, was cleaned after each use, sometimes several
5 times a day.” Ad. Team P&As, at 66. Notably, the cited testimony reveals that Mr.
6 Polzien’s purported knowledge is entirely made-up and that in fact Mr. Polzien has no
7 personal knowledge regarding the mixing process. Polzien Dep., 272:9-11. The
8 credible testimony of former Goodrich employees who actually participated in the mixing
9 of propellant contradict Mr. Polzien’s false statement. Mr. Wever estimates that, in 1959,
10 “on average propellant was mixed for production purposes approximately once a
11 week[.]” Wever Dec. ¶ 30 (emphasis added). Moreover, former Goodrich production
12 employees testified that there were periods of time when no production propellant was
13 mixed at all. See Haggard Dep., 151:5-20; see also Haggard Dep., 156:17-157:23
14 (“During the period of time that you were on the day shift, do you recall a shutdown of
15 production operations in order to perform maintenance at the facility? A. Yes. I don’t
16 remember the dates.”); see also Haggard Dep., at 199:2-22; Beach Dec., at ¶ 6 (“When I
17 worked in the production department, I recall that there were instances in which rocket
18 motors were not being produced at the Goodrich facility.”). Thus, it is clear that mixing
19 could not have occurred every day.

20 The Advocacy Team further asserts that “[t]he mixing room floor was swept and
21 mopped, if necessary,” but the evidence reflects that mopping was not a routine event.
22 Wever Dec. ¶ 32. Rather, mopping “would have been unnecessary due to the design of
23 the tooling used with the mixer, which prevented any spills.” *Id.* at ¶ 32. Further, the
24 transfer process following the mixing of propellant did not result in any spills: “[t]o my
25 knowledge, no fugitive emissions of any kind occurred during this transport.” *Id.* at ¶ 34;
26 see also Willis Dec. ¶ 8 (“I never saw a transfer vessel leak propellant onto the ground,
27 and I never saw a vessel fall over.”).

c. The Advocacy Team's Characterization of the Trimming Process Is Not Consistent with the Evidence

The Advocacy Team asserts that rocket motors were trimmed "meaning excess propellant would be cut away with an Exacto knife. The trimmings were placed in a bucket containing water, and taken to Goodrich's burn pit for disposal." Ad. Team P&As, at 68 (citations omitted). To support its statement that "trimmings were placed in a bucket containing water," the Advocacy Team directs the Hearing Officer to Mr. Polzien's testimony on pages 273-275. The Advocacy Team disregards the testimony of former Goodrich employees who actually participated in the trimming process in favor of Mr. Polzien's testimony, despite the fact that Mr. Polzien admits that he never witnessed the "trimming" operation," so he would be unable to provide truthful testimony as to the trimming process. Polzien Dep., 728:25-729:5 (Q. [d]id you ever actually see a Sidewinder trimmed and then look down and see actually how much trimming was done after it was completed? A. **No, because I never witnessed a trimming operation.**") (emphasis added); see also Polzien Dep., at 289:15-290:5. More importantly, Mr. Wever, who did witness the "trimming" operation, testified that the "trimming" process generated very little waste.

As the project manager on the Sidewinder motor, I witnesses the trimming of motors, including the Sidewinder, on a number of occasions. After the curing process, a very small amount of propellant was trimmed. Because the tooling was designed to minimize the amount of hand trimming, very little trimming was necessary, I am confident that it was less than 1/10% of the total material loaded into the motor. I recall that typically there was no trimming needed with respect to Sidewinder motors, but there may have been some "flashing" removed from some Sidewinders, which were really thin pieces that were extruded up between two pieces of tooling. Any particular scrap propellant from the trimming process was approximately a thousandth of an inch thick and maybe an eighth or a quarter of an inch wide. All trimming waste was placed in a combustible container and later transported to the burn pit for burning.

Wever Dec. ¶ 40; see also Beach Dec., at ¶ 5 ("There was not much trimming that needed to be done, however. At most, I trimmed an eighth of an inch thick and a half an inch wide of material from each nozzle. The trimmed propellant was placed in an

1 explosion-proof container that was sent to the burn pit.”); Bland Dec. ¶ 8 (“It is my best
2 estimate that less than half a pound of cured propellant was trimmed from each Loki
3 Motor.”); Ustan Dec. ¶ 12. Besides the fact that very little trimming was necessary, the
4 employees were very careful during the trimming process. Willis Dec. ¶ 10 (“I never saw
5 anyone throw trimmed material to the ground, and I never saw trimmed material lying on
6 the ground anywhere inside the building.”).

7 **9. The Evidence Does Not Support the Allegation that the**
8 **Sidewinder Salvage Project Resulted in Discharges of**
9 **Propellant**

10 The Advocacy Team alleges that “[t]he Sidewinder rocket motors that developed
11 cracks in their propellant grain were salvaged by removing the propellant with high-
12 pressure water and solvent, so that the casing could be reused.” Ad. Team P&As, at 78.
13 Notably no citation is provided for this “fact.” Testimony from former employees who
14 actually conducted the salvage project establishes that high powered water was **not**
15 used in connection with this project. See Garee Dep., 73:9-21; Haggard Dep., 113:2-
16 121:25, 210:5-213:22; see also Wever Dec. ¶ 47 (“**[n]o water was used to remove**
17 **propellant for the casing or in any other way during the auguring process.**”).

18 According to the Advocacy Team, “[s]ome of the residual propellant washed out
19 on the concrete walkway and onto the bare ground at the Property.” The Advocacy
20 Team cites several different former Goodrich employees for this allegation. But all but
21 one of the employees whose testimony was cited by the Advocacy Team, testified that
22 scrap propellant was **never** left laying strewn across the bare ground during the
23 salvaging process. Haggard Dep., 119:4-13; see also Haggard Dep., 116:8-15
24 (emphasis added); Garee Dep., 73:2-75:21; Wever Dec. ¶ 47 (“I did not observe any of
25 the propellant removed from the casings or solvent used spilled on the ground.”).

26 The only witness who testified to this “allegation,” of course, is Mr. Polzien.
27 According to Mr. Polzien, he was “so concerned” about propellant being “washed away”
28 during the propellant removal that he went to Mr. Sachara to discuss the issue. Polzien

1 Dep., 153:21-154:2.³ According to Mr. Polzien, after learning of Mr. Polzien's "concern,"
2 Mr. Sachara wrote a letter to the production manager insisting that "it be cleaned
3 immediately because there was a safety hazard, words to that effect." Polzien Dep.,
4 154:3-15. Mr. Sachara flatly refutes Mr. Polzien's testimony:

5 At no point during my employment at the Rialto facility did Mr.
6 Polzien ever tell me that he was concerned about working around
7 the test-firing area. He also never complained to me about the
8 manner in which propellant was being removed from rocket casings.
9 Despite Mr. Polzien's assertions to the contrary, I never expressed
10 concerns about the safety of removing propellant from rocket
11 casings to Jack Shields orally or in writing. Furthermore, I never
12 communicated to Jack Shields orally or in writing about the
13 existence of scrap propellant on the ground at the Rialto facility.

14 Sachara Dec., ¶ 13 (emphasis added). Once again, the overwhelming weight of the
15 testimony demonstrates that Mr. Polzien's recollection of events is either faulty or
16 fabricated, and cannot be relied upon by the Advocacy Team.

17 The Advocacy Team contends that "[e]stimates from former Goodrich employees
18 regarding the number of Sidewinders that were salvaged range from 24 to 100 rocket
19 motors. The balance of the testimony indicates that the actual number of Sidewinder
20 rocket motors salvaged is in the range of 24 to 36." Ad. Team P&As, at 78. In the cited
21 testimony to Mr. Polzien's deposition, Mr. Polzien speculates that "it had to be at least
22 one batch of 25; and I would think from what I saw there was two batches." Polzien
23 Dep., at 147:5-6; see also Polzien Dep., 1049:6-22. Then, Mr. Polzien testified that
24 approximately 100 defective Sidewinders were subject to the salvage process. Polzien
25 Dep., at 199:6-201:11. Mr. Polzien's "guess" regarding the number of Sidewinders
26 involved in the salvage process is clearly contradicted by other statements he made with
27 respect to this issue. Polzien Dep., 1158:18-1160:7 ("I was guessing about a
28 hundred. . ."), see also *Id.* 1049:1-24; 1161:6-17. Polzien Dep., 1049:1-24; 1158:18-

³ Of course, we have learned that Mr. Polzien's testimony about his "concerns" is as reliable as Ms. Sturdivant's personal, first hand accounts of the Goodrich operations in Rialto. Compare Polzien Dep., 156:1-158:15, 388:11-389:9 with Sturdivant Dep., 985:10-986:21.

1 11607; 1161:6-17. Moreover, the testimony of other former Goodrich employees
2 confirms that only approximately 20-30 Sidewinders were involved in this salvage
3 project: "I estimate that there were twenty to thirty Sidewinder rocket motors with cracked
4 propellant." Wever Dec. ¶ 47; Garee Dep., 74:20-25 (one batch of Sidewinders was
5 involved). Once again, the Advocacy Team blindly relies upon Mr. Polzien and
6 disregards the credible testimony of former Goodrich employees who actually
7 participated in or supervised the operation.

8 **IV. PYROTRONICS CORPORATION**

9 **A. Overview of Pyrotronics' Operations**

10 Pyrotronics Corporation ("Pyrotronics")⁴ and/or its predecessors operated a major
11 fireworks manufacturing, storage, disposal, and distribution facility at the 160-acre parcel
12 for at least 20 years from 1968 until 1988. During that time, Pyrotronics spilled and
13 released huge quantities of perchlorate and perchlorate laced water directly onto the
14 ground in multiple locations, including disposal pits, burn pits, a "swimming pool" (i.e.,
15 the "McLaughlin Pit") that overflowed and leaked, and many other releases.

16 In or around 1968, Clipper Fireworks Company,⁵ which had already been
17 operating in Rialto, apparently at 5200 N. Locust Avenue, became Pyrotronics
18 Corporation through a name change. Hescoc Dep., 28:16-24; 65:18-22. Pyrotronics
19 operated the Red Devil Fireworks ("Red Devil") and Apollo Manufacturing Company
20 ("Apollo") divisions, with Apollo manufacturing fireworks⁶ that were distributed by Red
21 Devil (the references to "Pyrotronics" herein will include Apollo and Red Devil). Hescoc
22 Dep., 57:16-58:13; Apel Dep., 81:21-24; Moriarty Dep., 306:12-25; 307:15-25; 309:10-
23 15; Ex. 10002; Ex. 10004.

24 ⁴ Pyrotronics is a completely separate and distinct company from the respondent in
25 these proceedings called Pyro Spectaculars.

26 ⁵ Patrick Moriarty and others bought Clipper Fireworks Company in 1958. Moriarty Dep.,
27 23:13-25; Ex. 11175 (Clipper Articles of Incorporation).

28 ⁶ United Fireworks Manufacturing Company, Inc. also manufactured fireworks in Rialto
as part of the Pyrotronics family of companies. Moriarty Dep., 294:20-295:22; 297:11-
25; 298:13-23.

1 A predecessor to Pyrotechnics, Atlas Fireworks Company, Inc. ("Atlas")
2 manufactured aerial displays and other fireworks⁷ in the early 1960s at a location off
3 Stonehurst Avenue in Rialto, just south of the 160-acre parcel. Moriarty Dep., 27:23-
4 28:14; Pierzina Dep., 27:9-13. Atlas' manufacturing took place in between the "A" and
5 "B" rows of old military bunkers located on the property.⁸ Hescoc Dep., 63:12-20; 63:24-
6 25; 64:22-25; 65:1-15; 292:19-293:25; 533:12-534:21. Atlas was eventually purchased
7 by Pyrotechnics, likely in 1965 or 1966, and its manufacturing operations were moved up
8 to the 160-acre parcel. Hescoc Dep., 167:10-21; 292:7-25; 339:11-25; Bybee Dep.,
9 36:12-17; 37:8-19; 72:13-73:6. In 1968, after it had been acquired by Pyrotechnics, Atlas'
10 name was changed to California Fireworks Display Company. Hescoc Dep., 459:15-
11 460:1; Bybee Dep., 81:8-18; Moriarty Dep., 44:21-45:7. California Fireworks Display
12 Company operated as a division of Pyrotechnics until 1979, and is discussed below.

13 By 1968, Pyrotechnics' employed approximately 80-100 individuals at its Rialto
14 facility. Hescoc Dep., 68:6-8; 70:3-8; 332:7-10. The number of employees remained
15 constant until at least 1981, when the pace of production slowed; yet by 1986 roughly
16 80-100 employees were still needed during peak season but not year round. Hescoc
17 Dep., 70:10-21; see also Hescoc Dep., 99:7-25; Ex. 10460 (80 employees operating
18 three to four months a year by 1984).

19 Pyrotechnics acquired the 160-acre parcel from Century Investment Company (a
20 Moriarty-controlled entity) on May 1, 1968⁹, (Hescoc Dep., 47:3-8; Ex. 10759), and
21 owned the property during the course of its Rialto operations, which lasted until
22 September 1988, when, following Pyrotechnics' bankruptcy filing in 1986, its fireworks

23 ⁷ Atlas also manufactured "seal control" devices, which included potassium perchlorate.
24 Bybee Dep., 38:10-39:19.

25 ⁸ Atlas' operations entailed the purchase and storage of raw materials, including
26 potassium perchlorate, and its facility included mixing and pressing rooms where
27 potassium perchlorate was handled. Bybee Dep., 46:18-20; 50:4-24; 51:8-19; 55:22-
28 56:2; 59:11-60:6; Moriarty Dep., 44:3-12. Atlas also tested consumer and display
fireworks at its original facility. Bybee Dep., 63:3-22.

⁹ Century Investment Company had acquired the property from B.F. Goodrich on May
25, 1966. Hescoc Dep., 39:15-24; Ex. 10758.

1 division was sold to RDF Holding Company.¹⁰ See *infra* Section VI. In May 1987, two
2 parcels on the southern portion of the 160-acre parcel were sold by Pyrotechnics to Ken
3 Thompson for use as a concrete pipe manufacturing business. Ex. 11116. The northern
4 portion of the 160-acre parcel was sold to RDF Holding Company/Wong Chung Ming on
5 December 7, 1988. Ex. 10163. Wong Chung Ming continues to own the northern
6 portion of the former 160-acre parcel today.

7 **B. Pyrotechnics' Fireworks Manufacturing**

8 Pyrotechnics initially manufactured both consumer and display fireworks¹¹ on the
9 160-acre parcel. See, e.g., Hescoc Dep., 36:20-37:2; 542:3-544:13; Exs. 10010,
10 10028-29, 10034, 10048. It is unclear if Pyrotechnics continued to manufacture display
11 fireworks after the sale of its display fireworks division, California Fireworks Display
12 Company, in 1979. Regardless, Pyrotechnics manufactured fireworks for almost twenty
13 years on the 160-acre parcel, until the mid-1980s when it ceased manufacturing and
14 became an importer and distributor of foreign-manufactured consumer fireworks.
15 Hescoc Dep., 548:4-549:11 (Pyrotechnics decided to begin to limit production in 1981 but
16 continued manufacturing certain consumer fireworks even after it declared bankruptcy in
17 1986); Exs. 10069, 10377.

18 **1. Pyrotechnics Purchased, Stored and Handled Substantial** 19 **Quantities of Raw Perchlorate**

20 Pyrotechnics routinely purchased, stored and handled raw chemicals, including
21 perchlorate,¹² at the Rialto facility. See, e.g., Apel Dep., 64:19-21; 126:17-20; Hescoc
22

23 ¹⁰ Through a series of transactions the fireworks division of Pyrotechnics, including its
24 goodwill and the trade name Red Devil, were ultimately acquired by American
25 Promotional Events, Inc.-West ("APE"). APE continues to operate a fireworks
importation, storage, testing and distribution facility on the Property today, and is
discussed below.

26 ¹¹ Potassium perchlorate-containing "seal control" devices were also made on the
27 property by or for Atlas Fireworks. Hescoc Dep., 149:2-150:10; 151:3-19; 269:14-24,
529:25-530:23.

28 ¹² Pyrotechnics also used solvents in the regular course of business to clean parts in the
machine shop on site. Apel Dep., 275:4-276:10; Shilling Dep., 59:13-60:8.

1 Dep., 156:25-157:5, 241:20-24; Cartagena Dep., 560:25-561:25, 563:2-564:1; Ex. 11133
2 (Autote's handwritten notes to himself in the mid-1970s reminding him to "pick up
3 perchlorate at Apollo"); Bybee Dep., 103:5-20 (Pyrotronics generally received potassium
4 perchlorate in 500 pound barrels, but sometimes it was delivered in 150-200 pound
5 barrels); Bybee Dep., 111:13-16; 296:4-22; Moriarty Dep., 102:3-23; 116:17-117:8
6 (potassium perchlorate received in 300 pound cardboard drums); Exs. 10434, 10102,
7 20390.

8 Perchlorate was used as a key ingredient of the fireworks manufactured by
9 Pyrotronics on the 160-acre parcel from the beginning, as reflected in an October 23,
10 1968 letter from Richard Doerr of Pyrotronics to Lorne Eastwood of the City of Rialto Fire
11 Department, which notes that potassium perchlorate was stored in a number of buildings
12 at the facility, and also identifies certain buildings containing presses used to
13 manufacture fireworks and other buildings used for machining and maintenance. Ex.
14 10014.¹³ A letter written by Mr. Doerr about ten years later confirms that potassium
15 perchlorate (and other chemicals) were still being stored on-site, and describes other
16 buildings used for the storage and/or manufacture of fireworks by Pyrotronics. Ex.
17 10053. The record is replete with further evidence of Pyrotronics' use and storage of
18 perchlorate throughout its operations. See, e.g., Moriarty Dep., 146:5-14; Ex. 10096;
19 Apel Dep., 82:1-7; Hescoc Dep., 262:24-264:12, 308:10-22; Mergil Dep., 152:21-
20 153:10; Ex. 10102 (reviewing August 1986 inventory for Apollo indicating 300 pounds of
21 perchlorate on hand on that date in Building 20 alone).

22 Furthermore, both documents and witness testimony confirm that the volume of
23 perchlorate used by Pyrotronics was substantial. Indeed, a large percentage of both the
24 consumer and display fireworks made by Pyrotronics used either potassium perchlorate
25 or ammonium perchlorate as the primary oxidizer ingredient, with potassium perchlorate
26 more commonly used than ammonium perchlorate. See Ex. 10064; Apel Dep., 88:7-7;

27 ¹³ A building permit was issued on September 30, 1969 for the construction of a
28 fireworks storage facility at 3196 North Locust Avenue. Ex. 110020.

1 257:20-258:2; Apel Dep., 257:12-25 (potassium perchlorate used in "green comp" and is
2 the oxidizer); Hescoc Dep., 241:20-242:13; 544:24-545:13; Moriarty Dep., 105:18-21
3 ("Base items and California Candles" contained potassium perchlorate); Moriarty Dep.,
4 135:21-25 ("gerbs" used potassium perchlorate); Exs. 10062-63 ("Red Fire" contains
5 perchlorate); Cartagena Dep., 158:5-15; Moriarty Dep., 142:22-143:21 (testifying to his
6 "personal knowledge that [Pyrotronics] used ammonium perchlorate."); Moriarty Dep.,
7 156:25-157:10 (ammonium perchlorate usage would not be unusual for Atlas or
8 Pyrotronics). Standard fireworks' compositions included oxidizers, such as perchlorate,
9 and oxidizers often comprised approximately fifty percent of the fireworks composition by
10 weight. See, e.g., Ex. 10100 (Describing the content of the "Silver Sunrise" firework and
11 indicating that it contains 58.53% potassium perchlorate); Ex. 11134.

12 According to receipts and deposition testimony, Apollo Manufacturing Company
13 received **21,000 pounds** of potassium perchlorate on September 21, 1979 in one
14 shipment. Ex. 10434 (Apollo Manufacturing Shipping Report indicating receipt from
15 Kerr-McGee of some "70 drums at 300 #" net weight of potassium perchlorate); Ex.
16 11237 (October 11, 1978 Order received by Kerr-McGee Corporation to ship 21,000
17 pounds of potassium perchlorate to consignee, Service Chemical, Inc.); Mergil Dep.,
18 29:17-30:18. Patrick Moriarty, the owner of Pyrotronics, testified that he preferred to buy
19 one month's worth of raw chemicals at a time and that it would not have been unusual to
20 receive a 21,000 pound shipment of perchlorate). Moriarty Dep., 115:17-116:16.

21 Another document reflects the purchase of 8,000 pounds of potassium
22 perchlorate from "JCI" on August 27, 1980. Ex. 20390. Even as late as 1985, when
23 Pyrotronics' manufacturing operations had scaled down, the company reported to the
24 City of Rialto Fire Department that it was handling some **25,000 pounds** of potassium
25 perchlorate *per month*. Apel Dep., 96:4-24; Ex. 10458; Hescoc Dep., 145:19-25, 146:1-
26 19 (Handling of 25,000 pounds of perchlorate on site not inconsistent with his knowledge
27 of the facility); Apel Dep., 95:8-21. Given the production schedules of Pyrotronics, it is
28 likely that it used significantly more than 21,000 pounds of perchlorate (even per month)

1 in years prior to 1979. Thus, in the roughly twenty-year span of Pyrotronics' Rialto
2 manufacturing operations, it is likely that Pyrotronics used **at least 420,000 pounds** (or
3 some 200 tons) of potassium perchlorate and some lesser amount of ammonium
4 perchlorate to manufacture fireworks in Rialto. If the usage rate corresponded to Mr.
5 Apel's 25,000 pounds per month estimate given in 1985, then the total would be
6 dramatically higher at some **6 million pounds** (or some 3,000 tons) of perchlorate.

7 And, notably, it appears that Pyrotronics may have significantly under-reported
8 the amount of perchlorate and other hazardous materials handled and stored at its Rialto
9 facility over the years. In 1987, Ms. Cartagena, who was then a manager at Pyrotronics,
10 was ordered by the general manager, Mr. Apel, not to identify potassium perchlorate and
11 other chemicals on a Hazardous Materials Business Plan she was preparing. When Ms.
12 Cartagena refused to sign the Business Plan because it had underreported the amounts
13 of those chemicals, Mr. Apel simply signed the form himself with full knowledge of the
14 omission. Cartagena Dep., 308:21-309:16, 310:1-7, 311:18-314:2. Trying to explain
15 why Mr. Apel ordered this omission, Ms. Cartagena testified that: "[a] lot of people were
16 secretive about the business"; "[a]ll fireworks compan[ies] are secretive, I have found . . .
17 there are so many government regulations, that if they 100 percent comply, they would
18 be out of business." Cartagena Dep., 313:18-314:2; 314:16-25.

19 2. Pyrotronics' Use and Clean-up of the Press Rooms

20 As part of the fireworks manufacturing process, Pyrotronics utilized large
21 hydraulic presses with rods designed to insert chemicals including perchlorate and other
22 material into the fireworks tubes. Hescoc Dep., 116:11-117:9; Exs. 10015, 10014,
23 10017; 10084 (1984 map showing the location of powder mixing area and presses),
24 10802, 20175, 20176. At various times these presses were located in Buildings 2, 3, 4,
25 19, 44, 49 and 50 (the presses were numbered to correspond to the building they were
26 housed in). Mr. Hescoc testified that there were two presses on the facility when he
27 began working in Rialto in 1968, and five presses by 1981. Hescoc Dep., 185:12-25;
28 392:19-24 and Ex. 10809; Hescoc Dep., 310:23-311:24, 312:20-24; see also Cartagena

1 Dep., 433:1-15; 433:22-25; 559:2-25; Shilling Dep., 335:12-336:25 (Ms. Shilling, who
2 worked for Pyrotechnics from 1979 through 1989, testified that early in her tenure presses
3 were running and that she hired people to press fireworks with machinery).

4 Mixed powders, including perchlorate, were transported from raw chemical
5 storage areas to the press rooms in plastic containers; after pressing was completed
6 boxes of partially finished fireworks were moved to another portion of the facility for
7 labeling, fuse attachment, and, if necessary, a base. Hescox Dep., 282:25-283:11;
8 285:16-25. It is clear that potassium perchlorate (among other chemicals) was used in
9 the presses when making fireworks. Exs. 10058-61, 10066; 11235; Moriarty Dep.,
10 106:5-107:9 (press in Building 19 used for potassium perchlorate-containing "base
11 items" and "California Candles"; press in Building 44 used for potassium perchlorate-
12 containing "waterfalls" and "cones"); Moriarty Dep., 136:12-137:11 (Press 49 used to
13 make potassium perchlorate containing "Silver Screamer").

14 During Mr. Apel's tenure, six to eight employees were engaged in pressing
15 operations during peak times. Apel Dep., 373:24-374:6. Press room employees wore
16 masks to prevent them from breathing accumulated pyrotechnic powder, goggles to
17 keep dust out of their eyes, and other protective gear, and also kept the doors to the
18 press room open to allow for quick escape in the event of a fire. Apel Dep., 120:2-20;
19 Hescox Dep., 120:3-15; Shilling Dep., 66:14-22, 70:9-12; Moriarty Dep., 128:3-13; Ex.
20 10802. The press rooms were "rather dusty", (Hescox Dep., 300:7-11), and at the end of
21 the work day the coveralls or smocks worn by the employees would be covered with
22 powder. Shilling Dep., 190:5-193:10.¹⁴

23 Written "Operating Instructions" for the "Press Room" specified that press rooms
24 were to be cleaned every two hours "using dry brush method, and thoroughly washed
25 down with water at the end of each work shift." Ex. 10633; Mergil Dep., 83:10-25

26
27 ¹⁴ According to Mr. Moriarty, Pyrotechnics maintained washers and dryers on site to clean
28 the employees' work clothing at the end of the day. The waste water from the washers
and dryers was discharged to a sewer or septic system. Moriarty Dep., 126:3-127:6.

1 (testifying that press rooms were swept up every couple of hours pursuant to written
2 instructions). Spilled pyrotechnic composition, which included perchlorate, and brush
3 and broom sweepings collected from the press rooms were placed into plastic
4 containers, and, after a sufficient amount had accumulated (50–100 pounds), taken to
5 their burn pit during the early years of operation. Hescoc Dep., 113:17-114:3; Moriarty
6 Dep., 124:6-21. After air quality regulators limited Pyrotechnics' ability to burn this
7 material, it was taken to the McLaughlin Pit, discussed below, for disposal. Hescoc
8 Dep., 114:4-115:15; Mergil Dep., 82:1-14. However, even after the McLaughlin Pit was
9 in use, discussed below, waste fireworks were still burned in various locations on the
10 property. Ex. 10033, 10044, 10046, 10051, 10065, 10077, 10080.

11 The press rooms were also hosed down with water, generally once a day at the
12 end of the work shift, in order to wash up the waste pyrotechnic material that remained
13 after pressing operations. Hescoc Dep., 115:17–116:5; Apel Dep., 117:8-10. Mr.
14 Hescoc testified that the water would travel “onto the cement floor and out the door and
15 into the sump at the end of each – at each door, there was a channel where water would
16 run into the sump. And all the chemicals would settle in the bottom of it [the sump], and
17 the water would flow out into the ground.” Hescoc Dep., 117:11-16. Mr. Mergil similarly
18 testified that the press room was hosed down with water at the end of each shift, and the
19 water traveled into an unlined concrete sump (with no bottom) where the powder
20 accumulated at the bottom. Mergil Dep., 84:12-85:7, 85:19-21.¹⁵ Others have confirmed
21 the presence of “sumps” or “troughs” located outside each of the press rooms, (Apel
22 Dep., 118:7-9; Moriarty Dep., 125:3-13; Mergil Dep., 97:11-25), and this testimony is
23 consistent with the written instructions that required employees to “wash down the
24 interior of the press building insuring that all residue flows into the sump basin.” Ex.
25 10633. Mr. Hescoc and Mr. Mergil both testified that this procedure was followed.
26 Hescoc Dep., 120:20–121:6; Mergil Dep., 89:14-25, 90:20-24.

27 ¹⁵ Mr. Mergil never cleaned the powder out of the bottom of the sumps, and didn't know
28 if anyone else did. Mergil Dep., 85:1-14.

1 The above-ground sumps were made of concrete and located below the gradient
2 of the building, so that the water would flow into them as it came out of the building.
3 Mergil Dep., 99:22-100:16. It appears that at least some of the sumps had a screen on
4 top, so that material collected in the top of the screen could be collected and sent to the
5 Fireworks Burn Pit for disposal. Moriarty Dep., 125:14-17. Water was not collected from
6 the sumps; it was left to evaporate, (Apel Dep., 418:11-13), and the sumps occasionally
7 overflowed onto the bare ground and the water percolated into the soil. Moriarty Dep.,
8 125:18-126:1.

9 These sumps were used for the duration of Pyrotronics' operations, and many still
10 exist outside of the buildings that remain on the 160-acre parcel. At Exhibits 20205,
11 20206, and 20207, there are photographs taken of the sumps as they exist today.

12 3. Pyrotronics' Use and Clean-up of the Mixing Rooms

13 Initially, Pyrotronics' mixing operations were conducted in a below-ground,
14 automated mixer that was controlled remotely from Building 70. Hescoc Dep., 329:18-
15 330:20. The automated mixer was located in Fire Zone 8, east of the main parking lot
16 and southeast of Building 70, and chemicals stored in Buildings 71-74 were transferred
17 to the mixer by overhead conveyor. Ex. 10809; Hescoc Dep., 330:8-13. Present-day
18 photographs of some of the controls used to operate the automated mixers are at Exs.
19 20142, 20152, 20158, and 20153. But the underground mixer was destroyed in 1968 in
20 a massive, deadly explosion (discussed below) and never rebuilt, and mixing did not
21 resume at this location. Hescoc Dep., 330:2-20, 380:18-21; Moriarty Dep., 91:6-9.
22 There is no evidence of any effort to clean up the fireworks composition chemicals,
23 including perchlorate, that were undoubtedly scattered over a wide area as a result of
24 this massive explosion.

25 After the 1968 explosion, Pyrotronics began hand mixing in Buildings 95-99,
26 located south of the main office in Fire Zone 9.¹⁶ Hescoc Dep., 264:14-265:22; Moriarty

27 ¹⁶ For safety reasons, no more than fifty pounds of pyrotechnic composition was to be
28 hand-mixed at a time. Mergil Dep., 93:7-25; see also Moriarty Dep., 130:25-131:6.

1 Dep., 103:16-104:13. Chemicals were weighed, screened and then mixed by hand to
2 create compositions that would ultimately be pressed or packed into firework items.
3 Hescoc Dep., 123:11-13, 265:23-266:1; 301:22-303:10; Apel Dep., 91:3-14. During Mr.
4 Apel's tenure, five or six people were typically engaged in mixing operations. Apel Dep.,
5 373:12-15.

6 The chemical mixing process was described as "dirty", and "very dusty"¹⁷, with
7 chemical powder and dust a constant presence in the mixing area. Hescoc Dep., 301:8-
8 22; 302:25-303:10. Accordingly, mixing room employees wore respirators, overalls,
9 hoods, gloves, and other protective gear. Apel Dep., 91:3-20; 101:1-25; Hescoc Dep.,
10 525:9-526:4; Mergil Dep., 310:4-5 ("mixing is a dirty job. You got coveralls, mask and
11 everything."); Shilling Dep., 71:18-23 (employees in the mix rooms wore masks and
12 coveralls); Moriarty Dep., 128:3-8; Apel Dep., 91:3-10.¹⁸

13 Pyrotechnics' procedures for cleaning the mixing rooms and disposing of collected
14 or washed down pyrotechnic composition were much like those discussed above for the
15 press rooms, as reflected in the similarity of the written instructions covering each.
16 Hescoc Dep., 123:11-125:19; Exs. 10633, 10632; Apel Dep., 117:17-25; Hescoc Dep.,
17 487:9-18; Mergil Dep., 94:12-95:2. Initially, like the press rooms, the mixing rooms were
18 to be regularly swept. Mr. Mergil testified that one of his duties was to clean up "spilled
19 powder" – or the powder that was "flying around" in the mixing room – after every two
20 mixes, pursuant to instructions he was given on day one (and as required by the written
21 instructions). He explained: "I didn't want to get burned in there, so if there's powder
22 there, I want to get rid of it." Mergil Dep., 96:11-97:1, see also, Mergil Dep., 242:7-243:2.

23
24 ¹⁷ Written reports reflect that employees sustained injuries when powder or fireworks
25 composition got into their eyes, and eye irritation was a common complaint. Shilling
26 Dep., 102:10-23, 104:19-106:3, 108:9-16, 110:19-111:4; 251:17-25; Ex. 10098.
Because of the frequency of such incidents, a first-aid area in the buildings was
designed with eye wash to clean the powder out of an employee's eye; but if the irritation
was severe the injured employee was sent to the clinic. Shilling Dep., 255:17-256:11.

27 ¹⁸ It appears that these items and the dirty clothing worn by employees in the mixing
28 room was cleaned at the facility. Apel Dep., 102:1-10; see also Moriarty Dep., 126:3-
127:6.

1 The sweepings were then deposited into a plastic container labeled to indicate
2 that "excess powder" was inside, and set on the ground in front of the building. Such
3 containers were eventually collected and taken to the Fireworks Burn Pit for disposal.
4 Mergil Dep., 354:15-357:11; Moriarty Dep., 131:8-22; 132:23-25. Later, however, after
5 Pyrotronics was no longer permitted to burn its waste material, the sweepings were
6 dumped into the McLaughlin Pit.¹⁹ Hescoc Dep., 124:17-125:5; 131:20-132:9; 488:2-6;
7 Apel Dep., 364:5-10.

8 Express written instructions also directed employees to hose down the mixing
9 rooms to "insur[e] that all residue flows into sump basin." Ex. 10632, Hescoc Dep.,
10 120:20-121:6, 128:18-20. And witnesses have confirmed in deposition that the floors
11 were in fact hosed to wash pyrotechnic powders out of the building and prevent the
12 accumulation of powder. Apel Dep., 109:9-110:3; Moriarty Dep., 133:1-15. The
13 cleaning procedure in the mixing rooms was to "sweep it up, water it down and
14 squeegee it out"; and this was "the procedure everybody followed." Mergil Dep., 97:10,
15 98:23-24; Moriarty Dep., 134:1-6. According to Mr. Apel, "troughs" were located directly
16 outside of the mixing rooms on the property to collect this runoff. Apel Dep., 110:9-16;
17 see also Mergil Dep., 102:17-24 (Mr. Mergil recalls hosing down the mixing room so that
18 the water ran off into a sump outside the mixing room); Moriarty Dep., 134:7-9.

19 The written procedures and former employee testimony discussed above refer to
20 the mixing rooms that were located in Fire Zone 9 (Buildings 95-99), but it is likely that
21 similar procedures were followed by Pyrotronics when its mixing took place in Fire Zone
22 8, as photographs taken at the property in August 2006 show that sumps were also
23 located directly outside of buildings 71-74. Exs. 20116-20120, 20145, 20146.

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26
27 ¹⁹ There is evidence that at one point sweepings from the press and mixing rooms were
28 collected and stored in an old railroad car on the 160-acre parcel for a period of time,
before ultimately being taken to the burn pit. Apel Dep., 106:13-22; 365:14-25.

1 **C. Pyrotechnics' Waste Disposal Practices**

2 **1. The Fireworks Burn Pit**

3 **a. Pyrotechnics Disposed of Pyrotechnic Waste Material in**
4 **the Fireworks Burn Pit**

5 From the beginning, Pyrotechnics disposed of defective or damaged fireworks and
6 pyrotechnic and production waste in a large, unlined burn pit located on the south-
7 southwest portion of the 160-acre parcel (hereinafter referred to as the "Fireworks Burn
8 Pit."). Apel Dep., 140:24–141:3; 141:8-19; 143:23-144:25; 147:1-4; 148:23–149:10;
9 364:5-10; Hescox Dep., 159:6-17; Moriarty Dep., 160:8-21, 161:4-162:4; 165:24-166:10;
10 Hescox Dep., 113:17-114:3; 364:15-367:2; 391:2-22²⁰; Mergil Dep., 119:19-25;
11 Cartagena Dep., 319:22-25; Moriarty Dep., 123:2-15; 165:5-22.²¹ The Fireworks Burn
12 Pit was so large that one former employee testified "you could drive into [the pit] with a
13 truck and just dump the product on the ground and light it". Hescox Dep., 391:13-22. Its
14 precise dimensions are unclear, but estimates have ranged from ten to twenty feet wide,
15 twelve to fifteen feet deep and thirty to several hundred feet long. See, e.g., Carlton
16 Dep., 332:1-5. There is evidence that Trojan Fireworks (discussed below) also used the
17 Fireworks Burn Pit to dispose of similar waste material. Carlton Dep., 205:17-206:19,
18 330:22-331:12; Apel Dep., 424:22–427:25; Autote Dep., 278:5-15; 282:9-283:8; 284:8-
19 286:12; 290:6-293:13 (describing at least two trips up the Fireworks Burn Pit in the late
20 1980s with trucks stacked full of waste and off-spec fireworks, discussed more fully
21 below).

22 Pyrotechnics used the Fireworks Burn Pit at least once a week and perhaps as
23 many as three to four times per week during peak season, which for production
24 purposes ran from about February to the end of May, although the frequency of burns

25 ²⁰ Because aerial display shells were a "hazardous item to burn", they were burned
26 separately from other fireworks. First, the shell was cut open and the "loose powder"
27 dumped to the ground, to prevent the shell from being projected into the air during a
28 burn. Hescox Dep., 365:11–367:2.

²¹ According to Mr. Moriarty, protective clothing that was made of paper, such as masks,
 were also disposed in the Fireworks Burn Pit. Moriarty Dep., 127:13-20.

1 often depended on weather conditions.²² Moriarty Dep., 355:19-356:7; Hescoc Dep.,
2 191:10-192:10; 364:21- 365:4. The frequency, extent and duration of Pyrotronics' use
3 of the Fireworks Burn Pit is partially reflected in burn permits it received from the City of
4 Rialto Fire Department/Air Quality Management District and records it kept of the amount
5 of waste that it burned. Ex. 10350 (5/19/1971 APCD variance hearing minutes re burn
6 of 2,000 pounds of waste fireworks per week); Exs. 10078-79, 10642, 10090, 10137²³;
7 Cartagena Dep., 113:10-115:1; 116:1-12; Exs. 10139, 10148, 10152, 10154-56, 10146;
8 11236.

9 The Fireworks Burn Pit was used by Pyrotronics from at least 1968 (and perhaps
10 earlier) up until the south western portion of the 160-acre parcel was sold to Ken
11 Thompson, a concrete pipe manufacturer, in May 1987. Apel Dep., 140:24-141:18;
12 Shilling Dep., 75:15-19. However, use of the Fireworks Burn Pit slowed down around
13 1972, when restrictions on open burning were imposed by air quality officials and the
14 McLaughlin Pit swimming pool-like structure was built, discussed below. See, e.g.,
15 Hescoc Dep., 114:4-16 (defective fireworks would have been taken to burn pit before
16 AQMD stopped allowing burns; after that would have thrown into the pond "and let them
17 turn to mush").²⁴ Such restrictions on open burning ultimately led Pyrotronics to
18 construct a waste disposal pond known as the McLaughlin Pit, which is discussed below.

22 ²² Regardless of how often burns were conducted, materials were transported to the
23 burn pit daily and then left in the pit to await the next burn. Moriarty Dep., 356:8-16;
24 374:1-9. Witnesses have observed materials deposited in the pit being rained on before
being burned, and Pyrotronics used water hoses to control burn pit fires. Moriarty Dep.,
164:6-12.

25 ²³ Ms. Cartagena testified that the AQMD granted an exception to its prohibition on
burning to allow this and other burns to take place in 1987. Cartagena Dep., 116:1-12.

26 ²⁴ In one instance, early in 1985, Pyrotronics' burn permit was voided by the RFD and
27 Pyrotronics "had no way of . . . getting rid of waste material", so the waste was stored for
28 a time in an old rail car in Fire Zone 9. These materials were eventually burned in the
Fireworks Burn Pit after a permit was later issued by the AQMD. Apel Dep., 186:12-
187:17; 188:17-21; 191:18-192:12.

1 **b. The Fireworks Burn Pit Was Used With the Approval and**
2 **Oversight of the City of Rialto Fire Department and Other**
3 **Public Agencies**

4 The disposal of defective fireworks and pyrotechnic waste through open burning
5 was the City of Rialto Fire Department's preferred method of disposal, and it routinely
6 approved the burning of such waste. In fact, a permit issued by the City of Rialto Fire
7 Department was required²⁵ to burn any waste material within the City of Rialto, and, after
8 receiving an application for such a permit, the City of Rialto Fire Department typically
9 conducted a physical inspection of the proposed burn area, at least insofar as the
10 application proposed to burn in a new location or a particular entity was submitting its
11 first application to burn. Eastwood Dep., 54:1- 56:12; McVeitty Dep., 119:7-20. Permits
12 aside, the City of Rialto Fire Department, "regularly" came on to Pyrotronics' property,
13 and inspected the facility, including the Fireworks Burn Pit and the Burn Pipe,
14 approximately every two months. Hescoc Dep., 506:20-24; Mergil Dep., 301:2-17.

15 The City of Rialto Fire Department did not require material to be burned on a
16 concrete pad or any other lining or barrier, and it regularly approved burns in the unlined
17 Fireworks Burn Pit. Eastwood Dep., 58:15-25; McVeitty Dep., 119:7-122:11. Indeed,
18 the record is replete with written approvals from the City of Rialto Fire Department
19 allowing Pyrotronics to burn defective fireworks and pyrotechnic waste material at the
20 Fireworks Burn Pit. See, e.g., Exs. 10933, 10079, 10642, 10090, 10132, 10146,
21 11236, 10148, 10152, 10154-56.

22 Eventually, permission to burn also needed to be obtained from the South Coast
23 Air Quality Management District ("SCAQMD"). Apel Dep., 410:20-411:6; see also
24 Shilling Dep., 61:11-13; 61:21-23, 92:1-93:11; 95:22-25; 410:10-18 (testifying that she
25 called the SCAQMD (in addition to the City of Rialto Fire Department) for clearance prior
26 to the burning of material; permission was granted or denied based upon the weather
27 conditions). Ms. Shilling testified that she contacted the SCAQMD first, and she could

28 ²⁵ Permission to burn was granted verbally by the RFD at times as well. Hescoc Dep.,
 189:3-15.

1 not recall an instance where she received permission from the SCAQMD but was
2 subsequently denied permission by the City of Rialto Fire Department. To Ms. Shilling,
3 SCAQMD lack of response "meant that things were fine." Shilling Dep., 410:20-411:12.

4 Contemporaneous written records prepared by the City of Rialto Fire Department
5 indicate that it responded to numerous unplanned fires and explosions at the Fireworks
6 Burn Pit during the course of Pyrotechnics' operations, which often involved pyrotechnic
7 powder and other fireworks material that had been placed in the burn pit. Exs. 10033,
8 10044, 10046, 10051, 10065, 10077, 10080, 10025.

9 **2. Pyrotechnics Burned Waste Material At An Additional Location** 10 **in Fire Zone 2**

11 Pyrotechnics also burned waste material on a concrete pad that had been the floor
12 of a press room destroyed in a 1968 explosion. Apel Dep., 365:25-366:13; Hescoc
13 Dep., 386:9-25. The cement pad was surrounded by a twelve-foot dirt berm on three
14 sides, with an entrance on the north side, and also had a cage to retain flying debris.
15 Apel Dep., 367:1-17; Hescoc Dep., 386:7-16. Scrap and defective cones, chemicals,
16 substandard and damaged fireworks, and other materials were routinely burned at this
17 location. Hescoc Dep., 386:9-25, Apel Dep., 367:7-11.

18 Pyrotechnics primarily used this burn area to dispose of consumer fireworks that
19 were manufactured by its Apollo division, and burned material at this location from 1968
20 until at least the early to mid-1980s, when it began to import most of its fireworks.
21 Hescoc Dep., 387:1-7; 387:20-25; 388:17-22. However, pyrotechnic material continued
22 to be burned at this location by other fireworks companies after Pyrotechnics ceased
23 operating, as discussed below.

24 **3. The McLaughlin Pit**

25 **a. No Longer Permitted to Burn its Pyrotechnic Waste** 26 **Material, Pyrotechnics Built the McLaughlin Pit as an** 27 **Alternate Means of Disposal**

28 Because of air quality regulations adopted in the late 1960s and early 1970s that
restricted open burning of any refuse material in Southern California, the San Bernardino

1 County Air Pollution Control District ("SBAPCD"), a predecessor to the SCAQMD, began
2 to refuse Pyrotechnics' requests for permission to burn the large quantities of pyrotechnic
3 waste and off-specification fireworks that accumulated at its facility. Hescoc Dep.,
4 114:4-16; 357:4-18 ("the fire department – or APCD [SBAPDC], I guess it is . . . refused
5 to give us a burn permit."); see also Ex. 10120, 10006 (August 7, 1987 Hazardous
6 Waste Generator Survey prepared by Pyrotechnics and noting that back in the 1970s it
7 was having difficulty disposing of off-specification fireworks because its "Fire Department
8 Burn Permit was voided by AQMD."); Cartagena Dep., 693:12-21 (testifying that the
9 restrictions on open burning were AQMD's decision and the City of Rialto Fire
10 Department indicated they could do nothing about it). As a result, in late 1971
11 Pyrotechnics commissioned the construction of a concrete-lined, rectangular shaped
12 "swimming pool", or waste disposal pond, which ultimately came to be known as the
13 "McLaughlin Pit". Mergil Dep., 283:5-13 ("It was like a swimming pool."); Cartagena
14 Dep., 104:8-13 (the McLaughlin Pit was "a concrete swimming pool that had waste in
15 it."); Ex. 10417. Unable to continue burning waste material lawfully,²⁶ the pond was the
16 only way Mr. Hescoc, "could conceive of . . . deactivating the combinations of chemicals
17 we had in powder dry form. I didn't know what else to do with them." Hescoc Dep.,
18 198:21–199:18; see also *Id.* 105:9-17; 357:4-18 ("When we couldn't burn it, that's when
19 [the McLaughlin Pit] was built.").

20 Completed in January 1972, the McLaughlin Pit measured approximately twenty
21 feet wide, twenty feet long and four feet deep,²⁷ with a 12,000 gallon capacity, and was
22 located in the south-west portion of the property slightly northeast of the Fireworks Burn
23 Pit in Fire Zone 5. Ex. 10417; Apel Dep., 136:16–137:11; 170:8-16; McLaughlin Dep.,
24 53:21-54:19; Mergil Dep., 103:18-104:5 (testifying that the pond was the size of a

25
26 ²⁶ Mr. Moriarty testified that even after the implementation of such regulations
27 Pyrotechnics still continued to burn pyrotechnic waste, but did so "at night so [the
28 SCAQMD] didn't see the smoke." Moriarty Dep., 177:20-178:8.

²⁷ Other evidence indicates that the pond may have been 20' x 25' x 5'. See, e.g., Exs.
10846, 10108.

1 swimming pool); Ex. 10417.

2 Before the McLaughlin Pit was completed, Pyrotronics was forced to seek several
3 variances from the San Bernardino County APCD to dispose of the substantial amount
4 of fireworks waste material generated at its facility by continuing to burn that material.
5 On May 19, 1971, Richard Doerr, the Pyrotronics safety engineer, appeared at a San
6 Bernardino County Air Pollution Control District variance hearing, on behalf of Apollo, to
7 request a one-year variance to allow the continued burning of "unusable powder residue
8 and damaged fireworks" at the Rialto facility. Mr. Doerr stated that Apollo had been
9 conducting burns bi-weekly and burning approximately 2,000 pounds of waste firework
10 manufacturing material per week. According to Mr. Doerr, Apollo's waste material could
11 not be buried because it "*would contaminate the groundwater system possibly if wet
12 down.*" Ex. 10350 (emphasis added). At a subsequent hearing on September 1, 1971,
13 Apollo was granted a variance until November 3, 1971, which was later continued to
14 January 5, 1972, (*id.*), but by then it was clear that Pyrotronics would no longer be able
15 to regularly burn in wholesale fashion its perchlorate-laden waste material, and shortly
16 thereafter it began the process of seeking approval to construct and operate the
17 McLaughlin Pit for liquid waste disposal.

18 **b. The McLaughlin Pit Was Constructed With the Regional**
19 **Board's Oversight and Approval**

20 Apollo applied to the Santa Ana Regional Water Quality Control Board ("Regional
21 Board") for a permit to construct and operate a disposal pit for its manufacturing waste
22 materials on September 24, 1971. Its initial application estimated that Apollo would
23 discharge 150 gallons per day of liquid industrial wastes to an "Imperious Evaporated
24 [sic] Pond". Ex. 10428; Berchtold Dep., 126:21-127:1. In response, Richard
25 Bueermann, the Executive Officer of the Regional Board, sent Apollo Tentative Order
26 71-39 on October 5, 1971, which set forth proposed Waste Discharge Requirements
27
28

1 ("WDRs") for Apollo's use of the contemplated waste disposal pond.²⁸ According to the
2 transmittal letter, the Tentative Order "simply require[s] that no wastewater be allowed to
3 penetrate the ground surface where it will percolate to the underlying groundwater table.
4 Technical reports are required and are intended to monitor the efficiency of the
5 impervious lining. Provisions for measuring water depth in the pond is important and
6 should be incorporated in the construction of the pond." Ex. 10424.²⁹

7 On November 24, 1971, the Regional Board issued Order 71-39, (Ex. 10418),
8 which authorized the construction and operation of the McLaughlin Pit and provided,
9 *inter alia*, the following requirements:

- 10 • There shall be no discharge of waste to surface waters, surface water
11 drainage courses or to areas which would allow percolation of waste.
- 12 • Transfer of wastes for ultimate disposal shall be made to an approved
13 Class I disposal site or other facility approved by the Executive Officer.

14 Order 71-39 also included Monitoring and Reporting Program 71-39, which required
15 Apollo to provide, under penalty of perjury, the following "technical reports": (1) quarterly
16 summaries of each month's activities submitted on the tenth day of each reporting period
17 (identified as April 10, July 10, October 10, and January 10), (2) the daily average flow
18 for each month, (3) the depth of waste in the pond reported on the first day of each
19 month, and (4) a report of each ultimate disposal of waste material transferred to a Class
20 I site, for approval by the Executive Officer *prior to* such transfer.³⁰ As detailed below,

21 ²⁸ Mr. Bueermann also sent Tentative Order 71-39 to various state and local agencies on
22 October 5, 1971. The cover letter noted that "[e]xisting disposal operations, which
23 consist of burning waste powder, are to be replaced with a liquid method to satisfy
24 burning prohibitions administered by the San Bernardino Air Pollution Control District.
The liquid method will consist of an evaporation pond in which the waste powder will be
deposited . . . the inert ingredients will settle to the bottom of the pond." Ex. 10423.

25 ²⁹ Along with certain other public agencies, the California Department of Public Health
26 approved Tentative Order 71-39, but advised the Regional Board that "*your staff should
thoroughly review plans of the proposed pond to determine that it is truly impervious and
will effectively prevent percolation of these liquid wastes.*" Ex. 10421 (emphasis added).

27 ³⁰ Mr. Berchtold, the current Assistant Executive Officer of the Regional Board and a
28 member of the Advocacy Team, testified to being unaware if the Regional Board has
ever examined whether the Executive Officer had approved even a single transfer of
materials from the McLaughlin Pit to a Class I site, as required under Regional Board

1 Apollo routinely failed to comply with these reporting requirements, and there is no
2 written confirmation that it ever transported any waste from the McLaughlin Pit to a Class
3 I site until 1983.

4 On December 9, 1971, Apollo sent the Regional Board a proposal for the
5 construction of a 20' x 20' x 4' surface impoundment, which had been prepared by
6 Dwight H. Williams Swimming Pools in Rialto. Ex. 10417. Although Order 71-39
7 required the pond to have an impervious lining, the pond installed was simply a
8 plastered gunite swimming pool without any liner. *Id.*; Exs. 10410, 10418. English Dec.,
9 ¶¶ 6, 7, 8, 9. Thus, the pond was not made of concrete. According to minutes of a
10 variance hearing held before the SBAPCD on January 5, 1972, construction of the
11 McLaughlin Pit was completed on that day.³¹

12 **c. Pyrotronics Disposed of Perchlorate-Laden Waste**
13 **Powder and Off-Specification Fireworks in the**
14 **McLaughlin Pit for Nearly Sixteen Years**

15 Pyrotronics' use of the McLaughlin Pit began in 1972 and continued until its
16 closure in December 1987. The McLaughlin Pit was created for "the waste disposal of
17 the sweepings and powder that's contaminated, to dissolve it and deactivate it." Hescox
18 Dep., 359:20-24; Mergil Dep., 103:20-21 ("it was just a pond, and they had water in it,
19 and they had powder in it."). As mentioned above, material that previously had been
20 burned in the Fireworks Burn Pit – pyrotechnic composition and other material swept off
21 the floor of the mixing and press rooms, as well as off-specification fireworks – was now
22 dumped in the liquid containing McLaughlin Pit because of air quality restrictions on
23 open burning. Hescox Dep., 159:9–160:2 (defective fireworks were thrown in the pond

24 Order 71-39; though he acknowledged that transporting waste from the pond without
25 such approval would have been a violation of Order 71-39. Berchtold Dep., 134:22-
26 135:10. No written evidence of any waste transfers approved by the Executive Officer
27 has been found thus far in the Regional Board's files.

28 ³¹ At this hearing, Mr. Doerr withdrew a written request for an extension of a previously
granted variance from burning restrictions– which had been sought due to delays in
completing the McLaughlin Pit – because the McLaughlin Pit was scheduled to be
completed that day. Mr. Doerr did seek permission to burn accumulated waste that had
not been burned under the variance due to inclement weather. His request was granted.
Ex. 10350.

1 so they would “turn to mush”); Mergil Dep., 82:5-10 (“I know [Pyrotronics] had a pond,
2 and . . . they would throw the loose powder in there.”); Mergil Dep., 104:22– 105:1 (“I
3 would see the guy that carries the powder. I would see him go there and throw the –
4 excess powder . . . [i]nto the pond.”); Mergil Dep., 368:1-10; Adelson Dep., 60:21-25.

5 Witnesses have testified to seeing mixed pyrotechnic powders, fireworks,
6 production waste, skyrockets, hand grenades, aerial shells, cardboard tubes, military
7 flares, and other military ordnance, including grenades, in the surface impoundment.
8 Apel Dep., 137:13-21; 149:12–150:11; 272:3-13, 272:20-273:12; 381:16–382:13;
9 382:24-383:2; McLaughlin Dep., 99:6-102:22; Ex. 10092. A photograph of the interior
10 contents of the pond taken in 1987 confirms that firework shells and casings were in the
11 pond and Mr. McLaughlin identified specific military grenades that he saw in the pond
12 and confirmed what he saw in a photograph at his deposition as the precise type of
13 grenades in the pond. Ex. 11226.

14 Because waste material in the McLaughlin Pit would tend to ignite automatically if
15 left dry, Pyrotronics intentionally and continuously flooded the McLaughlin Pit so that the
16 water level was kept “very close” to the top of the pond. Apel Dep., 152:20-153:12;
17 153:1-12 (water level in the pond was kept to within two to three feet of the top of the
18 pond); Mergil Dep., 106:21-22 (“it was a pond with water in it.”); Mergil Dep., 305:18-20
19 (the pond “had water and powder”)³²; Berchtold Dep., 101:18-102:2 (water was kept on
20 top to avoid it catching fire); Ex. 10410 (letter from Berchtold confirming the pond
21 overflowed). Regional Board inspection records similarly reveal that the water level
22 frequently was observed to be dangerously close to the top of the McLaughlin Pit,
23 presenting an obvious overflow hazard and ultimately leading to the adoption of a twelve
24 inch freeboard requirement for the pond in Order 78-96, which amended Order 71-39 (as
25 discussed below).

26 ³² Mr. Mergil remembers seeing powder at the bottom of the pond, underneath the water.
27 Mergil Dep., 351:25-352:6. Ms. Cartagena testified that the contents in the McLaughlin
28 Pit resembled “black sludge”, and that “a lot of rainwater had gotten into” the Pit.
Cartagena Dep., 105:23-106:6; 199:6-19.

1 The fear of ignition was not unfounded, as certain chemicals placed in the
2 McLaughlin Pit, including perchlorate, are known to ignite after being wet and then
3 drying. Hescox Dep., 211:19-212:16; Ex. 10109 ("When dry, the material tends to auto-
4 ignite"). And the McLaughlin Pit did spontaneously ignite on at least three occasions.
5 Apel Dep., 152:21-153:12 and Ex. 963; McLaughlin Dep., 282:16-283:1; Ex. 10381. In
6 June 1985, the City of Rialto Fire Department responded to one such incident; and
7 reported using 1,000 gallons of water to extinguish a fire in the McLaughlin Pit that
8 "contained mostly fireworks related debris" and "spread to near-by grass, burning an
9 area 100' x 100'". Ex. 10442; Apel Dep., 391:22-393:25; Hescox Dep., 211:14-25.

10 The McLaughlin Pit was uncovered for a substantial period of its operations and
11 perhaps up until 1986, shortly before its closure. Mr. Mergil, who was working for
12 Pyrotronics when the McLaughlin Pit was built and witnessed its ultimate closure in
13 1987, testified that the pond was never covered with a roof. Mergil Dep., 240:8-12. Ms.
14 Cartagena started working on the 160-acre parcel in 1980 and was also present when
15 the McLaughlin Pit was closed; she too does not recall the pond ever being covered.
16 Cartagena Dep., 107:12-14; see also Adelson Dep., 118:5-8. Ground level photographic
17 evidence produced by the Regional Board demonstrates that the McLaughlin Pit was
18 uncovered as of September, 1977. Ex. 10410. Aerial photographic reviews confirm that
19 the McLaughlin Pit was not covered from its construction until around 1986 or 1987.
20 Bennett Dec., ¶ 29. A Regional Board inspection report dated July 10, 1986 observed
21 that the McLaughlin Pit "*has been* loosely covered with metal sheeting to prevent direct
22 sunlight from striking dried material, which could auto-ignite", (Ex. 10377) (emphasis
23 added), suggesting that this cover was only recently added and was not intended to
24 prevent overflow from rainwater. Further, it is clear that the McLaughlin Pit did in fact
25 overflow - multiple witnesses have testified that it overflowed during rain storms, (Hescox
26 Dep., 199:25-200:9; Apel Dep., 151:11-13;), including Mr. Berchtold of the Regional
27 Board, who recorded that the McLaughlin Pit had overflowed in a March 3, 1983
28 inspection report (suggesting that the pond was uncovered at that time). Ex. 10389-90;

Berchtold Dep., 176:15-179:18, 180:4-20; see also Saremi Dep., 561:22-562:3.

d. Pyrotronics'/Apollo's Operation of The McLaughlin Pit Continued Without Pause Even as Regional Board Inspectors Routinely Identified Violations of WDRs and Regulations

The McLaughlin Pit was regularly inspected by the Regional Board staff during its 16 years of operation from its opening in January 1972 through its closure in December 1987. The few inspection reports that have been produced by the Regional Board reveal that Pyrotronics' operation of the McLaughlin Pit involved repeated and persistent violations of its WDRs and various regulations, but that the Regional Board took no action to resolve the violations and prevent waste material in the McLaughlin Pit discharging, from leaching and percolating into the subsurface below.

T.J. Homan of the Regional Board inspected the McLaughlin Pit on January 10, 1972, less than a week after the Pit was completed. A letter from Mr. Homan to Mr. Doerr dated January 12, 1972 indicated that the pond appeared to be structurally sound and watertight, but that a measuring device to determine water depth needed to be added, and the decant pipes needed to be removed, because, if used, they would constitute a violation of Order 71-39.³³ Ex. 10416. The letter also stated that "an accurate record should be kept showing the quantity of waste discharged to the pond and the amount of make-up water added when necessary."

On December 27, 1973 the Regional Board sent correspondence to Apollo indicating that Apollo's quarterly monitoring report, which was due in July 1973 pursuant to Order 71-39, had still not been received. Ex. 10415. Regional Board correspondence dated October 27, 1976 indicates that Apollo had not submitted technical reports due on July 10 and October 10, 1976. Ex. 10413. As of this writing, the Regional Board has not produced a single quarterly technical report submitted by Apollo pursuant to Order 71-

³³ There is no record to substantiate whether these instructions were followed.

1 39.³⁴

2 On September 29, 1977, John Silva of the Regional Board inspected the
3 McLaughlin Pit. Ex. 10410. His report describes the Pit's dimensions to be 20' x 20' x
4 4', and calculates its capacity to be 12,000 gallons. According to Mr. Silva's report, Mr.
5 Doerr told him that "explosive powder is added to the pond"; and that "water is added to
6 keep powder submerged such that it will not burn or explode." At the time of inspection,
7 the McLaughlin Pit had a freeboard³⁵ of 25 inches; but it had only 1 inch and seven
8 inches of freeboard, respectively, in April and August 1977, according to separate
9 reports prepared at those times and referenced by Mr. Silva in his September 1977
10 inspection report. The report also recommended that Order 71-39 be revised to include
11 a 12 inch freeboard limit and mandate submission of liquid waste hauler reports to the
12 Regional Board.³⁶

13 On November 16, 1977, the Regional Board wrote to Apollo to advise that its
14 WDRs for the McLaughlin Pit would need to be revised in light of the adoption of a Water
15 Quality Control Plan on April 11, 1975. The letter requested a report of waste
16 discharges and other information to support the new requirements. Ex. 10408. On
17 December 30, 1977, Apollo submitted an application for the new WDRs. The application
18 represented that Apollo now discharged *3,000 gallons per day* to the McLaughlin Pit
19 (which only had a 12,000 gallon capacity). Ex. 10404.
20
21

22 ³⁴ Counsel for Goodrich has attempted to obtain such documentation, to the extent that it
23 exists. The Regional Board's response to Goodrich's request was that it cannot locate
24 the file in which these documents would be contained. Ex. 20397 (March 13, 2007
Letter from Mr. Spiess to Mr. Dintzer); see also Ex. 11223 (April 9, 2007 Letter from Ms.
Novak to Mr. Dennis).

25 ³⁵ "Freeboard" is the distance between the liquid level in a pond and the top of the pond.
26 Minimum freeboard levels are commonly included in waste discharge requirements to
prevent overflow. Berchtold Dep., 104:22-105:4.

27 ³⁶ The Regional Board's Assistant Executive Officer recently testified that he is still
28 unaware of where Pyrotronics sent liquid waste from the McLaughlin Pit. Berchtold
Dep., 103:3-104:3, 104:21-108:17; 112:11-16.

1 On May 12, 1978, the Regional Board adopted Order 78-96³⁷, which established
2 new WDRs for the McLaughlin Pit, including, *inter alia*, provisions that "the discharge of
3 wastes to impervious evaporation ponds when the freeboard is less than one foot is
4 prohibited", and that "[a]ll industrial wastes removed from the facility shall be hauled by a
5 State registered liquid waste hauler and disposed of at an appropriate site." Ex. 10365.
6 Order 78-96 also included a Monitoring and Reporting Program requiring Pyrotronics to
7 report, on a quarterly basis, waste volumes and freeboard levels to the Regional Board.
8 *Id.* There is no evidence that these reporting requirements were ever complied with.³⁸
9 See Berchtold Dep., 155:13-16, 155:23-157:24.

10 On February 28, 1979, almost eight years after the McLaughlin Pit had been
11 operating under WDRs mandating its waste be sent to a Class I site for ultimate disposal
12 of hazardous wastes, the Regional Board wrote to Apollo with a list of Class I sites that
13 could "be contacted to see if acceptance of your type of waste will be possible." The
14 letter continued: "The waste should be hauled by a certified liquid waste hauler and the
15 final disposal site should be stated on your next monitoring report." Ex. 10393. The
16 ultimate disposal site for Apollo's liquid waste during the nearly eight year time period
17 before this letter was sent is unknown. However, it would have been a violation of the
18 WDR to have sent wastes offsite for disposal without advance notification of the
19 Executive Officer. Berchtold Dep., 135:6-10. Further, the fact that Mr. Doerr of
20 Pyrotronics was for the first time seeking the names of Class I sites certainly suggests
21 that he had not been sending the wastes in the Pit to such a site in the past.

22 A May 6, 1980 investigation report prepared by Gary Stewart of the Regional
23 Board notes that the McLaughlin Pit had only about nine inches of freeboard, and that
24 "the pond is full of solids" so "Mr. Doerr is going to arrange to have the pond emptied

25
26 ³⁷ Order 78-96 indicated that Apollo was discharging 3,000 gallons per day of industrial
27 waste into the McLaughlin Pit. A Regional Board memorandum recommending the
28 adoption of Order 78-96 made the same representation. Ex. 10365.

³⁸ There is written evidence of non-compliance. See, e.g., Ex. 10412 (Apollo failed to
submit a quarterly report due on July 18, 1978).

1 immediately." Ex. 10392. The report also notes that Apollo had failed to submit the last
2 three monitoring reports, which were due in October, January and April, of 1979 and
3 1980, respectively. *Id.* Thus, based on the information reflected in Mr. Stewart's report
4 alone, Pyrotronics had committed four separate violations of Order 78-96. Berchtold
5 Dep., 165:21-166:21 (conceding failure to submit these three reports constitutes three
6 violations of Order 78-96); Berchtold Dep., 168:7-14 (conceding a freeboard of only nine
7 inches constituted a violation of Order 78-96). Yet the only "Action to be Taken" that was
8 recorded in Mr. Stewart's inspection report was to "[w]rite letter if monitoring report not
9 received by May 28, 1980." Ex. 10392. And after Mr. Stewart's inspection, Pyrotronics
10 continued to violate its WDRs while the Regional Board continued to record these
11 violations without taking any meaningful corrective action. A November 4, 1981
12 inspection report, also prepared by Mr. Stewart, indicates that Apollo failed to submit its
13 July and October monitoring reports; two more violations of its waste discharge
14 requirements. Ex. 10391; Berchtold Dep., 171:14-25; Stewart Dep., 70:1-71:10. But
15 again there is no record of any action taken by the Regional Board.

16 On March 3, 1983, Kurt Berchtold of the Regional Board conducted a "routine
17 compliance" inspection of the McLaughlin Pit, and reported that Apollo had yet again
18 failed to submit at least two of the requisite monitoring reports. Ex. 10390; Berchtold
19 Dep., 177:16-178:6. The report further indicated that the "pond had **no freeboard**" –
20 meaning the water was right at the edge of the surface impoundment- and had
21 **overflowed** or overtopped because of rainfall. Ex. 10390. The contemporaneous
22 rainfall data in Rialto on that day and the series of days leading up to the date of Mr.
23 Berchtold's inspection make his estimate of only 5 gallons of overflow highly dubious.
24 Berchtold Dep., 179:4-17, 180:4-8, 184:22-187:13; Ex. 20395, 20396. The absence of
25 any freeboard and the overflow of Class I hazardous waste to the ground constituted two
26 more violations of Order 78-96, and presented an obvious threat to the environment.³⁹

27 ³⁹ Mr. Berchtold recently acknowledged in deposition that the overflow was a very
28 serious violation; but he could not recall why he didn't take any action to prevent future
occurrences. Berchtold Dep., 180:9-23; 183:4-6.

1 And despite these serious violations, the only "recommendation" in the
2 contemporaneously prepared report was to "send letter confirming inspection."⁴⁰

3 The day after Mr. Berchtold's inspection, the Apollo plant pumped out **20,000**
4 **gallons** of liquid waste, described as "fireworks comp", under four separate Hazardous
5 Waste Manifests (5,000 gallons each) which indicated that the waste was shipped by
6 Chancellor & Ogden to the BKK Landfill as hazardous wastes. Ex. 10076; Berchtold
7 Dep., 190:12-17. To date, this, and one shipment under hazardous waste manifest in
8 September 1984 of 4,000 gallons, are the *only* written evidence located of *any* transport
9 of waste from the McLaughlin Pit to a Class I facility for disposal. Of course, the 20,000
10 gallon figure itself is troubling and makes clear that the 12,000 gallon capacity
11 McLaughlin Pit must have been very full indeed to have yielded some 20,000 gallons of
12 hazardous waste the day after Mr. Berchtold saw it.

13 During a routine inspection of the surface impoundment on January 24, 1985 by
14 Bruce Paine of the Regional Board, Mr. Paine noted that the surface impoundment
15 hadn't been used in eighteen months because "all extra and inferior gun powder is
16 burned." Ex. 10388; Paine Dep., 86:15-88:22; 90:19-91:6, 91:13-92:25, 93:15-94:12.
17 According to the report, Apollo wanted to remove all "water, sludge & debris" from the
18 surface impoundment so that it could be closed and the property could be sold, and
19 Apollo was waiting for direction from the County regarding the proper means of disposal.
20 The report stated that the WDRs should be rescinded after proper closure of the "pond."

21 A March 4, 1985 letter from Mr. Apel, of Apollo, to the San Bernardino County
22 Department of Environmental Health Services, stated that some 3.9 tons of "sludge" had
23 been removed from the "pond" and that Apollo was trying to dispose of the balance so
24 that the McLaughlin Pit could be removed. According to the letter, Pyrotronics could not

25 ⁴⁰ A March 7, 1983 letter from Mr. Berchtold to Apollo, following up on the report,
26 advised that overflows from the pond were prohibited by Apollo's waste discharge
27 requirements (Order 78-96) and that discharging into the pond when freeboard was less
28 than one foot was also prohibited. The letter requested that Apollo make arrangements
in the future to have the McLaughlin Pit pumped in a timely manner, and noted that
recent monitoring reports had again not been submitted. Ex. 10389.

1 locate a TDS (no doubt referring to a treatment, storage or disposal ("TSD") facility for
2 handling hazardous wastes) to accept the solid waste that remained. Apel Dep., 164:7-
3 24; Ex. 10638; Hescoc Dep., 203:12-205:12, 205:8-12. A letter sent from Mr. Apel to
4 the San Bernardino County Environmental Health Services Department on March 26,
5 1985 indicated that the pond had been pumped out and that a majority of the "sludge"
6 had been transported to a "TSD"; the letter sought permission to close the "pond."
7 Ex. 10094.

8 **e. California Adopts Subchapter 15 Regulations**

9 In November 1984, a comprehensive set of regulations which governed the
10 discharge of waste to land and specifically applied to "existing" surface impoundments
11 (like the McLaughlin Pit) and their closure became effective. Subchapter 15, Title 23,
12 Chapter 3 of the California Administrative Code; hereinafter "Subchapter 15"
13 (Ex. 20085). The adoption of this new regulatory package was explained in an April 2,
14 1985 letter from James Anderson, the Executive Officer of the Regional Board, to Pedro
15 Mergil at Apollo. Ex. 10385. The letter advised Mr. Mergil that because Apollo was the
16 operator of an "existing" surface impoundment, it was required to submit a technical
17 report describing the groundwater monitoring program Apollo intended to implement in
18 order to comply with the new requirements set forth in Article 5 of Subchapter 15, and
19 that the technical report was due no later than May 28, 1985 under the regulations.⁴¹
20 Ex. 10385. This report was never prepared and submitted to the Regional Board as
21 required by law.

22 The next day, April 3, 1985, Mr. Anderson sent another letter to Mr. Mergil, which
23 stated that plans for the closure of the McLaughlin Pit should be included with the
24 submittal of Apollo's next regular quarterly monitoring report due in April. The letter
25 advised that "[y]our impervious pond *must be closed in accordance with*" the Subchapter
26

27 ⁴¹ The letter also explained that after submission of the proposed monitoring program,
28 Apollo's monitoring requirements under Order 78-96 would be revised, along with
Apollo's waste discharge requirements, so that they were consistent with Subchapter 15.

1 15 regulations, and the regulations were enclosed with the letter. Ex. 10384 (emphasis
2 added).

3 **f. Application of Subchapter 15 Regulations to "Existing"**
4 **Waste Management Units**

5 The new Subchapter 15 regulations were meant to provide a comprehensive
6 waste discharge to land regulatory program to be implemented by each regional board.
7 Each waste management unit in a regional board's jurisdiction was to be addressed
8 under the new program, and there were specific requirements for certain types of
9 "existing" waste management units. Under Section 2510(d), waste management units
10 that had already received all permits for construction and operation before the effective
11 date of the regulations (November 1984) were deemed "existing." The McLaughlin Pit
12 was clearly an "existing" waste management unit under the new program. Paine Dep.,
13 104:2-5. Further, waste management units were classified according to the types of
14 waste they contained. The McLaughlin Pit contained liquid explosive material that was
15 the result of fireworks manufacturing, and was designated by Pyrotronics as a federal
16 "hazardous waste" with a specific listing code – K044 – under the regulations identifying
17 hazardous wastes pursuant to the federal Resource Conservation and Recovery Act
18 ("RCRA") at 40 C.F.R. part 261.32(a) (adopted in 1981). Ex. 10378. In addition, the
19 numerous references to the Class I disposal sites that had to be used to haul the waste
20 offsite are all references to hazardous wastes. Holub Dep., 843:19-844:13; Paine Dep.,
21 39:6-19. Under the regulatory program in place at that time, any waste material that
22 consisted of or contained a material cited in the List of Chemical Names in Article 9 of 22
23 CCR Section 60291 were to be considered a "hazardous waste" in California in 1984-
24 1987, and both potassium nitrate and potassium perchlorate are on that list and were
25 known to be in the pond.

26 Waste management units were also classified by the type of unit – *i.e.* landfill,
27 surface impoundment, waste pile, etc. The McLaughlin Pit was a surface impoundment
28 as identified by both Pyrotronics (Ex. 10378) and by the Regional Board. Ex. 10385.

1 Also, because it contained hazardous waste, the McLaughlin Pit was a Class I surface
2 impoundment and thereby subject to some of the most stringent provisions of
3 Subchapter 15.

4 As an existing Class I surface impoundment, the McLaughlin Pit's operator,
5 Pyrotronics, was required to submit a monitoring program within 6 months of the
6 effective date of adoption of the Subchapter 15 regulations, or by May 1985, as the
7 Executive Officer of the Regional Board stated in the April 1985 letter to Pyrotronics.
8 Ex. 20085 (Title 23 Cal. Admin. Code Section 2510(d)(1) (1985)). That program was to
9 have included detection monitoring designed to sample the unsaturated zone and the
10 groundwater beneath the waste management unit and look for evidence of any leaking
11 from the waste management unit. See, e. g., *id.* at Sections 2550(b) and 2556. The
12 discharger was to propose, and the Regional Board was to approve, the specific
13 indicator parameters to be sampled for in the detection monitoring program. Ex. 20085
14 at Section 2556(a)(2). Such parameters were to be selected after considering the
15 "concentrations of constituents in wastes managed at the waste management unit" and
16 the "mobility, stability, and persistence of waste constituents or their reaction products."
17 If any leak of the waste management unit was identified by the detection monitoring
18 program, then a verification monitoring program was to have been implemented. See,
19 e.g., *id.* at Section 2556(b).

20 The verification monitoring program for a Class I waste management unit⁴²
21 required the discharger to analyze samples from all monitoring points (groundwater and
22 unsaturated zones as well as surface waters) for "all constituents identified in Appendix
23 III of this subchapter." Appendix III included "potassium perchlorate" in Table B. In other
24 words, the Subchapter 15 regulations established a program implemented by the
25 Regional Board in 1985 that would require a specific monitoring program from
26

27 ⁴² Robert Holub, the only Regional Board witness to claim that the McLaughlin Pit was
28 unclassified, did agree that the Subchapter 15 regulatory program nevertheless applied
to its operation and closure. Holub Dep., 845:23-25, 884:14-885:6, 885:24-886:1.

1 Pyrotronics to determine if the McLaughlin Pit was leaking, and, if so, to sample the soil
2 and install monitoring wells to assess groundwater for perchlorate and then take
3 corrective action as needed.⁴³ That was the program that the Executive Officer, James
4 Anderson, was referring to in his April 1985 letter to Pedro Mergil. However, as stated,
5 Pyrotronics never prepared such a program for submittal and the Regional Board never
6 demanded one, despite their duty to do so under the regulations to conduct site testing
7 which we now know would have revealed high perchlorate concentrations.

8 **g. Pyrotronics Fails to Submit Mandatory Monitoring**
9 **Program; Which the Regional Board Fails to Require**

10 On April 26, 1985, Mr. Mergil replied to Mr. Anderson's correspondence, stating
11 that all sludge had been removed from the pond and transported to an approved waste
12 management unit, and that Apollo was attempting to obtain permission to burn the
13 remaining solid waste. The letter indicated that Apollo would submit a closure plan in
14 accordance with Subchapter 15. Ex. 10383.

15 A June 17, 1985 note to file from Bruce Paine of the Regional Board indicates
16 that Apollo was working with a contractor who was trying to obtain a permit to burn the
17 residue remaining in the pit, and that Mr. Apel would provide an update on July 1, 1985.
18 On August 20, 1985, Mr. Apel wrote to Broco Inc., a waste disposal operator, asking for
19 help disposing of the remaining "solid waste" in the McLaughlin Pit. The letter stated:
20 "As I think you know, we have pumped all of the sludge out of the pond and only solid
21 waste remains . . . I realize your hands are tied because of the A.Q.M.D. requirements
22 on burning, but as soon as you receive word on your petition for a special burn permit
23 please contact me." Ex. 10381. By letter dated August 21, 1985, Mr. Apel forwarded to
24 Mr. Paine his August 20 letter to Broco, and stated that "Broco can not dispose of the
25

26 ⁴³ The Statement of Reasons produced along with the subchapter 15 regulations made
27 the reason for this point clear: Monitoring systems at Class I waste management units
28 must be sampled at least annually for constituents in Appendix III of the regulations
because Class I units typically receive a wide variety of hazardous waste. Page 5.17;
Ex. 20085.